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THE IRON AGE

A Review of the Hardware, Iron and [illegible]ades.

Published every Thursday Morning by David Williams Co., 232-238 W[illegible]liam St., New York.

Vol. LXIII: No. 16. *New York, Thursday, April 20, 1899.* $4.50 a Year, including Postage. Single Copies, Ten Cents.

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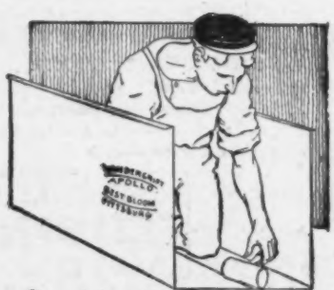

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Interesting Facts and Official Data

Pertaining to the 1899
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Number of full entries,	251, at $25.00	.....	$6,275.00
" " post "	11, " 35.00	.....	385.00
" " forfeit "	16, " 10.00	.....	160.00
Total, - -	278		$6,820.00

Of which total number 179 shooters used U. M. C. factory loaded Shells, being 64.39% of the entire attendance and drawing $4,955.25 of the purse of $6,820.00.

This is certainly an elegant showing and does not need any further comment. Above speaks for itself as to the quality of the goods used by the winner, the

HON. THOMAS A. MARSHALL OF KEITHSBURG, ILL.,

Who won the handicap for the second time with goods made by the

UNION METALLIC CARTRIDGE CO.,
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Winners of Handicap, 1893, '94, '95, '97, '98, '99.

CAHALL BOILERS See Page 84.

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Best Anti-Friction Metal for all Machinery Bearings.
Beware of Imitations.
Genuine Magnolia Metal is made up in bars of which this is a fac-simile:

The name and trade-mark appear on each box and bar, and the words "Manufactured in United States" and "Patented June 3, '90," are stamped on the under side of each bar.

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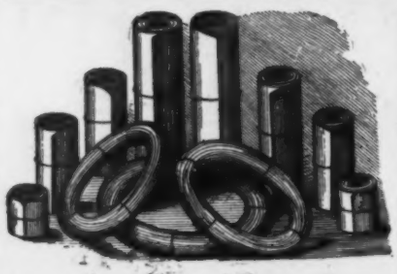

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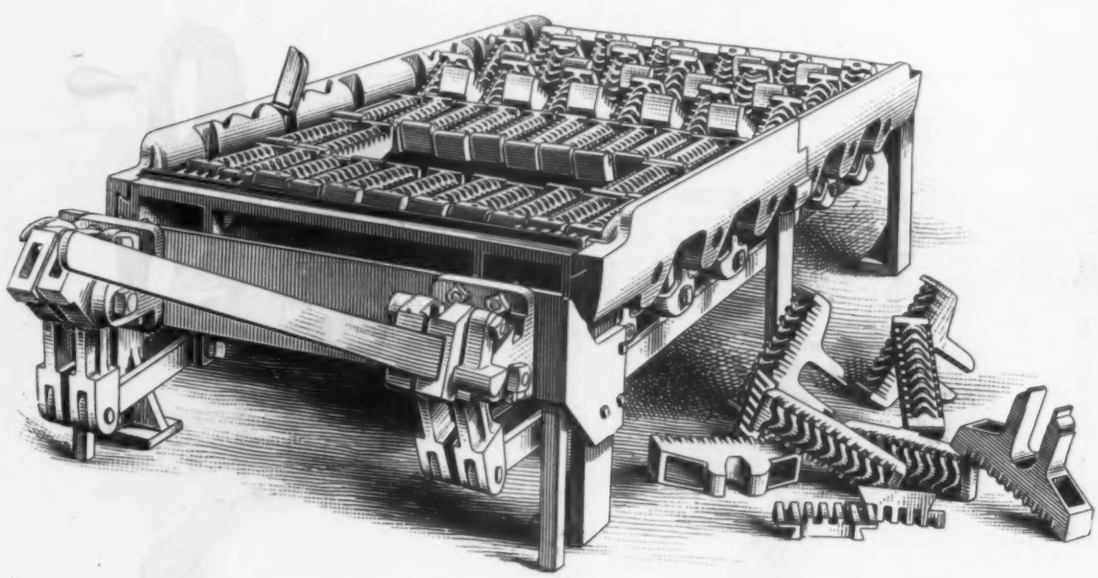
49 CLIFF ST., NEW YORK.

THE IRON AGE.

THURSDAY, APRIL 20, 1899.

The Gumphert Shaking Grate.

The design and operation of the double acting shaking and dumping grate here illustrated will be readily understood. The distribution of air through the bars is such that the most complete combustion takes place, leaving but a very small residue. For the easy removal of the ashes it is only necessary to insert the shaking lever in the device attached to the front of the boiler and move it slightly to and fro. The locking device is raised by the lever automatically, and the bars are moved in such a manner that the upper surfaces of adjacent bars assume a crossed position in relation to each other similar to the letter X. This is shown in the rear portion of the engraving. This removes the ashes, leaving the fire bright and clean, and yet does not allow any large openings through which unconsumed coal can fall into the ash pit. The fire can be dumped by moving one of the bracket levers forward and the other backward, when all the bars will assume a position with their upper surfaces parallel with each other and at an angle with the horizontal, so that whatever is on them will fall through to the ash pit. By this means all cleaning can be done from the front without the use of the common fire tools and with the furnace doors shut. The grate rests on legs, and is entirely independent of the boiler setting, and any expansion or contraction of the grate or side walls will have no effect on its working. The frame requires no bolting together, the end frames dropping into dovetails on the side frames, and the only bolts necessary on the whole construction are those holding the legs to the frame, and for the shaking device, which is outside the front and consequently entirely away from the fire. The bars are so short and of such form that they are not liable to warp or get out of shape and lock the grate. This grate is built by the Gumphert-Marrin Engineering Company, 302 Chestnut street, Philadelphia.



THE GUMPHERT SHAKING GRATE.

Bids were opened on the 13th inst. for supplying the city of Chicago with 7000 tons of cast iron water pipe. Only two bids were received, and the successful bidder was the United States Cast Iron Pipe & Foundry Company. Their bid was $23.48 per ton, an advance of $7.50 over the price of last year. The bid of the American Pipe & Foundry Company was $24.43. The pipe is to be ready for delivery in September. There are 372,000 feet to be contracted for.

The American Foundrymen's Association.

The fourth annual convention of the American Foundrymen's Association will be held in Pittsburgh, Pa., May 16 to 19. For many weeks committees have been actively at work perfecting all the necessary arrangements for the entertainment of the large number who are sure to take advantage of the reduced railroad fares granted from all parts of the country. A very interesting programme has been prepared, but the committee report that they are not nearly through yet, and contemplate many exceedingly interesting features which will make this convention a most memorable one both from an enjoyable as well as a practical and educational standpoint.

We are advised by Secretary John A. Penton that the programme, so far as is outlined by the committee cooperating with the secretary, will be about as follows:

Tuesday morning, reception and registration of delegates and their friends, and the opening of the convention, at which time addresses of welcome will be delivered by the Mayor, W. J. Diehl, representing the city. Clarence Burleigh, city attorney, will deliver an address on behalf of the local foundrymen. It is interesting to know, at this point, that Mr. Burleigh was originally a molder, having served his regular apprenticeship at the business. These, and possibly other addresses, will be responded to on behalf of the association by the president, C. S. Bell. The rest of the morning will be devoted to reports of officers, together with the reading of one or more of the many interesting papers of a technical character connected with the association's work. Tuesday afternoon the delegates and their friends will enjoy a trolley ride about the city and be shown some of the chief points of interest. Tuesday evening two papers of an unusually interesting character will be read and illustrated by the aid of a stereopticon, comprising an account of some of the recent improvements in foundry designing and erection, foundry equipment, &c. On Wednesday morning there will be a business meeting of the association. Wednesday afternoon the entire association will be taken

by train to Wilmerding, a few miles from Pittsburgh, where they will have an opportunity of visiting the plant of the Westinghouse Air Brake Company, famous for many original methods of doing work. Wednesday evening an informal reception will be held at one of the hotels of the city. Thursday morning.—This time will again be given up to the business of the association, and possibly the business of the meeting may be entirely closed up at that time. Thursday afternoon delegates and their friends will be taken on an excursion to the Homestead plant of the Carnegie Steel Company. Thursday evening an informal gathering, in all probability a smoker will be held at some convenient point in the city. On Friday, if there is no association business requiring attention, an opportunity will be given to all visitors to see any of the foundries or other objects of interest in and about Pittsburgh. The Local Entertainment Committee, of which I. W. Frank is chairman, will see that all possible assistance is given.

Every foundryman, whether or not a member of the association, will be welcome, and while the American Foundrymen's Association, of course, likes to include in its membership as many as are eligible, it will not discriminate in any character between those who are members and those who are not.

Key Duplicating Machine.

The machine here illustrated, built by the Builders' Iron Foundry of Providence, R. I., will accurately duplicate Yale, Corbin or similar keys in less than one minute. The key to be duplicated is placed in the right hand clamp and the blank in the left hand clamp. The backs of the keys should bear their entire length on the shoulders of the clamps, with the shoulder of the key and of the blank close to the left hand side of the clamp jaws. The guide disk is adjusted so that when it is at the shoulder of the key the wheel will just touch the corresponding part of the blank. Then with the wheel revolving the hand lever is moved from right to left until the wheel ceases to grind the blank. The blank will then be an exact duplicate of the original key. By varying the relative position of the guide disk with reference to the face of the wheel, keys may be cut narrower or wider than the pattern. The machine is furnished with a pulley for either flat or round belt, or with gears when it is desired to operate it by hand. The emery wheel is 6 inches in diameter, ⅛ inch face and has a 7-16 inch hole.

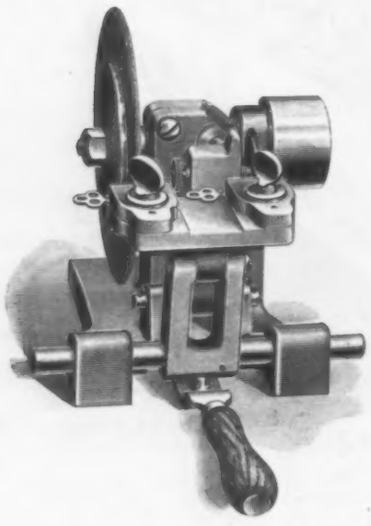


Fig. 1.- Power.

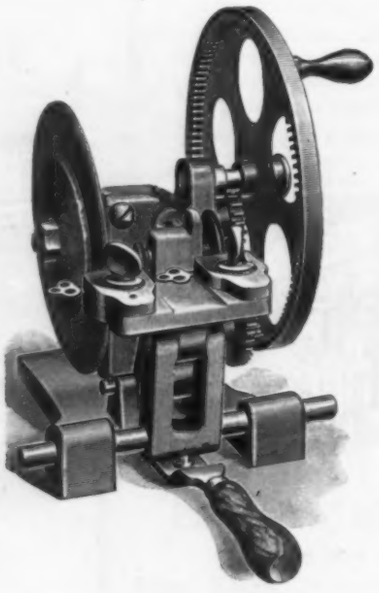


Fig. 2.—Hand.

KEY DUPLICATING MACHINE

On August 16, 1897, Lieutenant Girlache of the Belgian Navy sailed from Antwerp for the purpose of antarctic exploration. He was accompanied by a staff of scientists, including Dr. F. A. Cook of Brooklyn, and was last heard from on December 27, 1897, near Tierra del Fuego, bound for Graham's Land. He was due at Melbourne in April, 1898. Another expedition was organized at the cost of Sir George Newes, who sent out the "Southern Cross" from London on August 22, 1898, under Capt. C. E. Borchgrevink. The steamer landed its captain, ten men, dogs and supplies at Cape Adare, the nearest point of Victoria Land, and has reached New Zealand on its return. Cape Adare is in 71° 23′ south latitude, 169° 56′ east longitude, and Captain Borchgrevink proposed to winter there and then start toward the south pole in the spring. The Germans are now organizing a still larger expedition to be sent south under Dr. Erich von Drygalski, a distinguished Greenland explorer, at an estimated cost of $200,000. The British Royal Geographical Society has voted $25,000 to assist in this exploration. All these evince the reawakening interest in explorations in the neighborhood of the south pole.

Mechanical Engineers' Convention.

The thirty-ninth meeting of the American Society of Mechanical Engineers will be held in Washington, May 9 to 12, with headquarters at the Arlington. The opening session and informal reception by the president and officers of the society will be held on the evening of the 9th. On Wednesday afternoon the society will be received by President McKinley in the White House.

During the sessions the following papers will be read: J. B. Stanwood, "Standards for Direct Connected Generating Sets;" R. S. Hale, "Boiler and Furnace Efficiencies;" F. L. Emory, "Test of a Steam Separator;" Gus C. Henning, "Investigations of Boiler Explosions;" F. L. Emory, "Relation Between Initial Tension and Power Transmitted by a Belt;" C. L. Newcomb, "Experiments on Various Types of Fire Hydrants;" G. W. Bissell, "Experiences with Deep Well Pumping Rods;" A. F. Nagle, "Pipe Flanges and Their Bolts;" George R. Henderson, "Manufacture of Car Wheels;" R. P. Bolton, "Equipment of Tall Office Buildings in New York City;" Storm Bull, "The Central Heating Plant of the University of Wisconsin;" E. A. Darling, "The Power Plant of a University;" G. I. Alden, "The Plunger Elevator;" C. R. Pratt, "Elevators;" C. H. Quereau, "The Allen Valve for Locomotives;" John Fritz, "Rolling Mill Fly Wheels;" F. W. Gordon, "New System of Valves for Steam Engines, Air Engines and Compressors."

On and after May 1 the headquarters of the Japan-American Commercial and Industrial Association in New York City will be located in the Singer Building on lower Broadway, where the association has rented the fourth floor, consisting of 12 rooms. The organization now has 600 members in Japan and 300 in this country, and is doing much toward increasing the trade between the two countries. Charles E. Locke, formerly of the National Association of Manufacturers, is manager of the Japan-American Association, the president of which is Shizuo Kondo.

Central Steam Condensing Plants.*

During the last 20 years steam condensation for mining and rolling mill machinery has been developed to a considerable degree. By bearing in mind that with centralized steam condensation goes a saving of from 10 to 40 per cent. of the coal bill, it will readily be appreciated why since 1889 over 200,000 horse power have been connected with centralized condensing plants in the iron works of Rhineland and Westphalia. During the last two years in the same districts not less than 50,000 horse-power have been installed in mining plants.

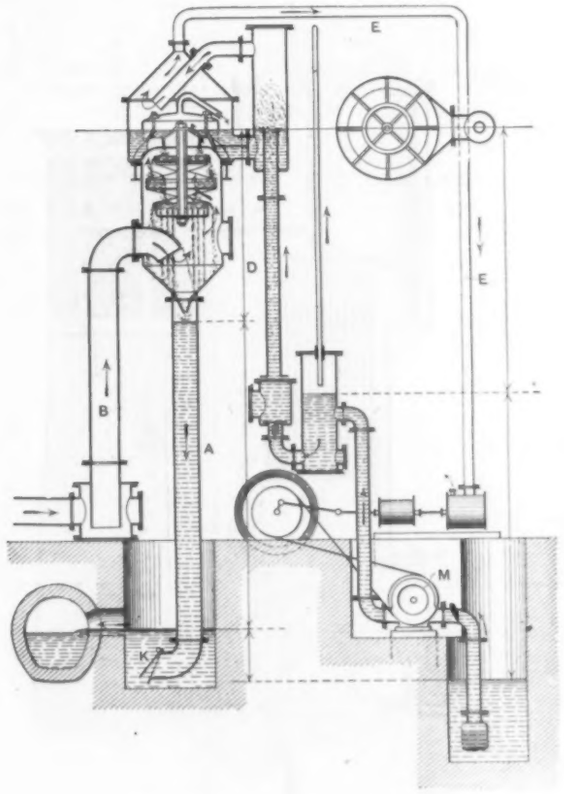


Fig. 1. The Weiss Condensing Plant.

The construction of such central condensing plants for steam machinery in iron works was started in the seventies. The Dingler'sche Maschinen Fabrik at Zweibrücken in 1878 built a central condensing plant for the iron works of the Dillingen Duisburger Maschinenbau Actien Gesellschaft in 1878 and in 1880 constructed two central condensing plants for iron works, one for the Georgs-Marienhuette at Osnabrueck, and the other for Thyssen & Cie. in Mülheim a. d. Ruhr.

That these plants, which even in regard to size may be compared with more modern installations, proved to be a valuable and economical investment is shown by the very fact that they are running to-day after 20 years of service. At the beginning a more general introduction of central condensation was prevented by the difficulty of securing the considerable amount of fresh cooling water needed. The last ten years witnessed a rapid development of this new branch of steam engineering for the following reasons:

1. With suitably constructed condensers the cooling water can be used much more thoroughly than in former systems.

2. Even with quantities of cooling water which admit of obtaining only a low vacuum considerable saving may be effected through condensation.

3. The necessary quantity of cooling water may be reduced by making use not only of the cold contained in the water as liquid, but also of the cold secured from part of the water in evaporating.

4. Cooling water, once used and therefore warm, may be cooled and be used over again; thus only the loss of cooling water resulting from evaporation and handling must be made good.

Among the pioneers in this new field F. T. Weiss, C. E., in Basel, deserves mention. By his clear and exhaustive publications on this subject he first called attention to this special branch.

Before entering into a more detailed description of the central steam condensing plants, the advantages and disadvantages as compared with single condensation may be mentioned.

There is no more disadvantage in the fact that all machinery of a works depends upon one or more central stations than there is in the dependence of many machines upon a single boiler plant or a single steam pipe. It is easy to provide for a reserve. A central steam condensing plant, from the very start, is much more carefully designed, for the reason of its importance to the whole establishment, than a single condenser. Being perfectly independent of the steam engines, the condensing pumps may be constructed and run in full harmony with their purpose. Of course the designer must avail himself thoroughly of these advantages by giving sufficient dimensions to the

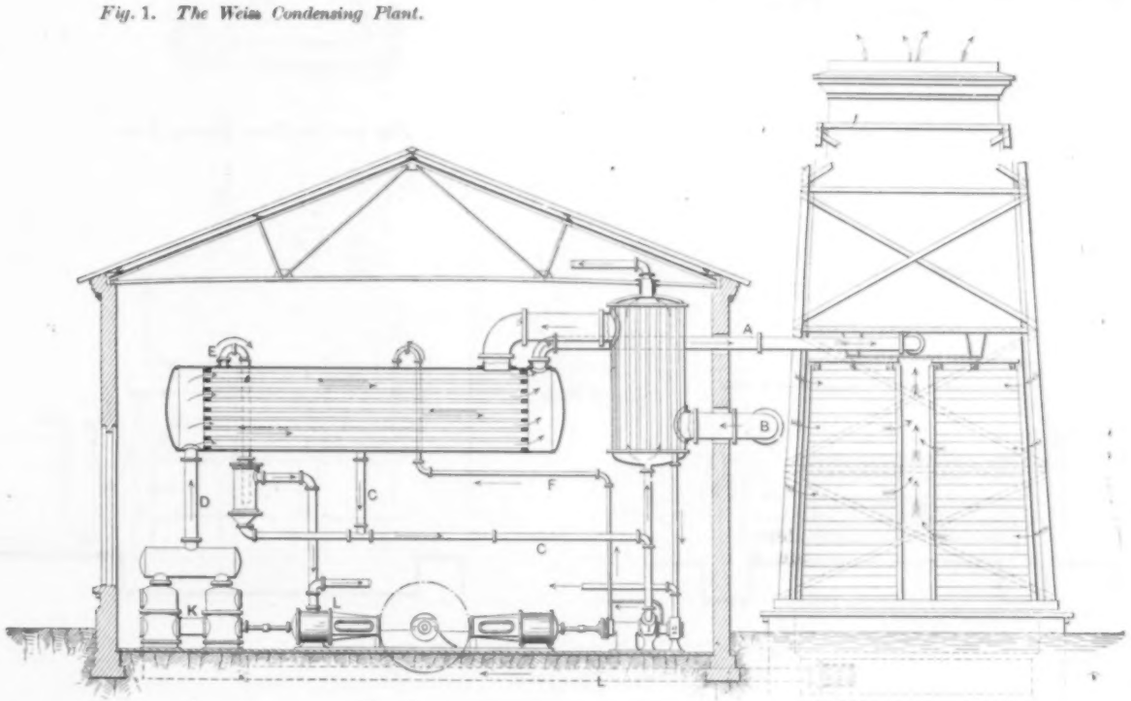


Fig. 2.—The Balcke Closed Condensing Plant.

CENTRAL STEAM CONDENSING PLANTS.

* From *Stahl und Eisen*, February, 1899.

pumps, letting them run slowly and making them easily accessible, conditions which rarely can be met in direct coupled condensing engines, and even less in modern high speed steam engines.

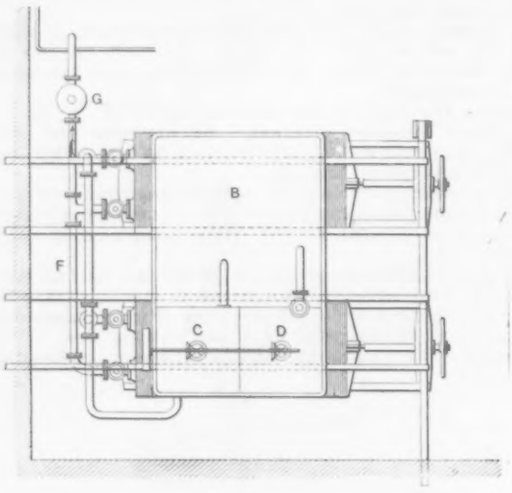
In the case of central condensation a vacuum exists when the engines are started; this fact is of prime importance to rolling mill engines, which, as a rule, must start often and under a heavy load.

As a rule, engines running continuously and under a constant load may be provided advantageously with independent condensation. But for rolling mill engines matters are different. Most of them run intermittently and under very variable load, heavy in starting. Therefore with rolling mill and mining engines central condensation is preferable under all circumstances.

Centralized plants, as they have been built in practice, can be arranged in two main groups—viz.:

1. Mixing or jet condensers.
2. Surface condensers.

Both systems differ mainly by the fact that in the first system cooling water and exhaust are mixed together and pass through a common outlet, whereas in the second system both are kept separate. In all designs, regardless of the class to which they may belong, one general requirement holds good—that is, under all circumstances, whatever the variations of the amount of steam used by the engine may be, no stoppage of the condenser is allowed to happen. Whether a condenser is able to meet this condition can be determined in advance by means of formulæ. It is essential with the condenser to have a great range of elasticity, that is to say, the quantity of water contained in the condenser must be sufficient to overcome a sudden rush of a maximum of steam without an excessive rise of temperature in the condenser itself, a condition which in practice is successfully met by providing large quantities and automatic circulation of cooling water.



Plan Fig. 3.

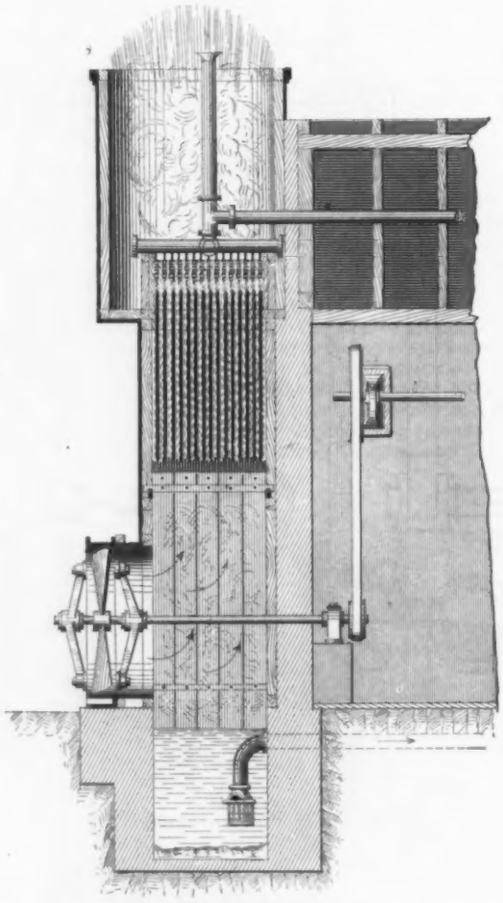
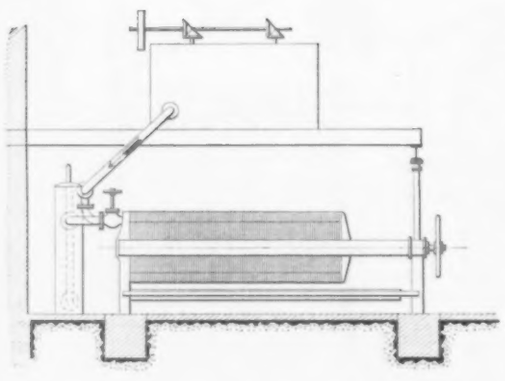


Fig. 4.—The Klein Cooling Tower.



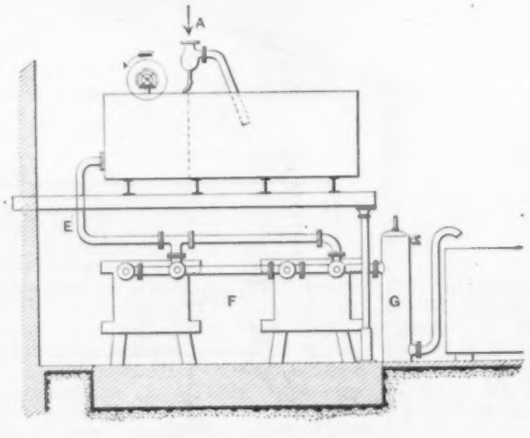


Fig. 3.—Plan and Elevation of Dehne Oil Extractor.

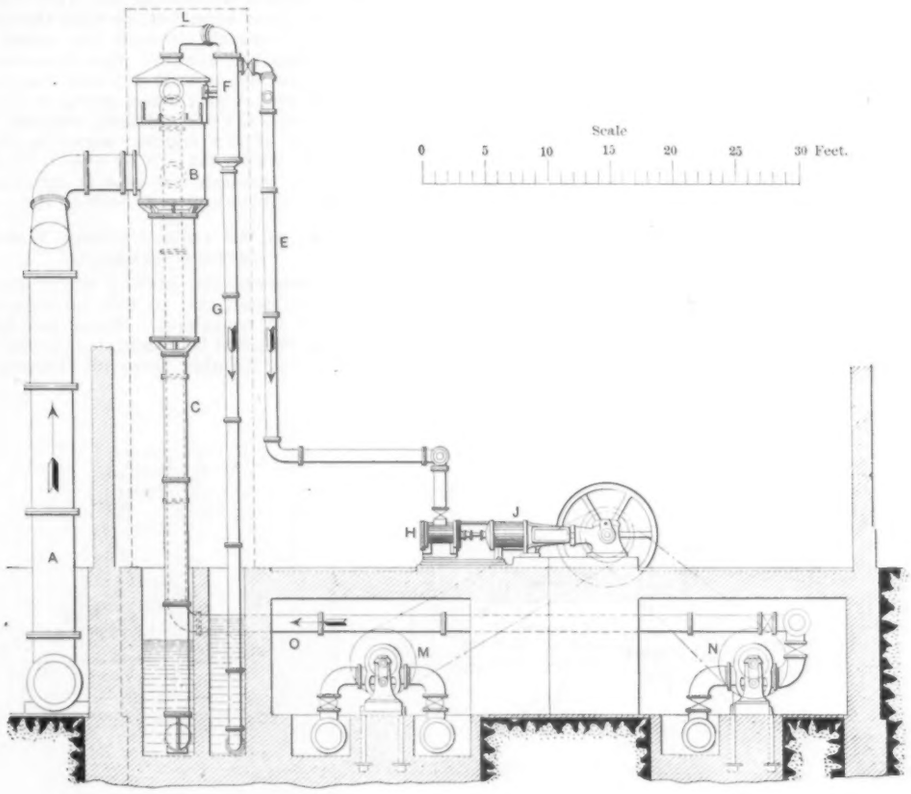
CENTRAL STEAM CONDENSING PLANTS.

Jet Condensers.

All designers of modern centralized jet condensers have water and exhaust circulating in opposite directions, a method suggested in 1889 by Weiss. The advantages of this principle are so well known that it is not necessary to explain them here any further.

Fig. 1 presents the Weiss condenser. The condenser itself is mounted in a rather elevated position. The exhaust enters from below through B, the cooling water enters at the top D, and is furnished by a rotary pump, M. The air is exhausted at the top E, and the warm water (cooling water and condensed exhaust) is delivered through the tube A. The quantity of cooling water is independent of the vacuum, therefore constant as long as the number of revolutions of the pump does not change. Weiss arranges the quantity and feed of the cooling water in such a way that even with the maximum quantity of exhaust the temperature in the condenser is kept below 100 degrees Celsius Any danger of failure of the apparatus with considerably varying quantities of exhaust is therefore excluded, since the feed of the water is assured.

The pressure in the condenser varies considerably, corresponding to the quantities of exhaust coming in. As a consequence the column of water contained in A has a tendency to oscillate up and down. Difficulties arising from this source, which were serious in the early days, Weiss lessens with the aid of the valve.



Elevation Fig. 5.

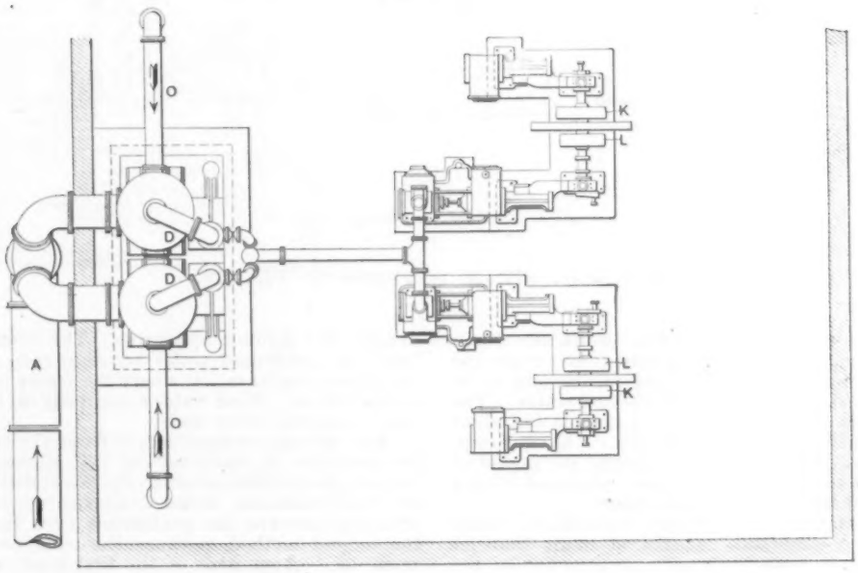


Fig. 5.—The Weiss Central Condensing Plant.

CENTRAL STEAM CONDENSING PLANTS.

Surface Condensers.

In the surface condenser the cooling water and condensed exhaust circulate separately. In case that all engines of an establishment are connected with the central condensation the condensed water, together with the water from the cylinder jackets, covers the whole amount of feed water required for the boiler, with the exception of 2 to 5 per cent. of loss due to leaky connections, &c. Therefore the same water keeps circulating through the boilers, which circumstance caused the general introduction of surface condensers on ocean steamers. During the last years this system has been introduced in stationary plants, also, especially where the use of condensed exhaust for boiler feeding seems advisable. Such is the case when the water at hand is wholly unfit for boiler use and the feed water must be bought from city service at high prices, and when the water of an existing supply must be purified before it can be used. The introduction of surface condensation may lead to substantial advantages even when the feed water can be used directly but shows a tendency to form scale in the boiler. Surface condensation, besides reducing the coal bill considerably: 1, Lessens the cost of feed water; 2, lessens the cost of cleaning and maintaining boilers; and 3, improves the heating surface of the boilers.

As to the relative value of surface and jet condensers

it must be borne in mind that with the former the first cost is always higher, and the quantity of cooling water is from 15 to 20 per cent. greater than with the latter. Condensed water from a surface condenser is not by any means pure distilled water, but it contains all the oil used in lubricating the cylinders, and this oil must be eliminated before the water can be used as feed water for boilers.

As in jet condensers the aim is to arrange for the counter current system in surface condensers.

The different plants constructed in practice may be grouped as follows:

1. *Closed Condensers.*—The cooling water circulates through a system of pipes arranged in a circular boiler, and the exhaust is in contact with the outer surface of the pipes.

2. *Open Condensers.*—The exhaust circulates through a system of pipes laid in ponds containing cooling water.

3. *Trickling Condensers.*—Cooling water runs over cooling surfaces (pipes, hollow plates) through which exhaust steam circulates. The circulation of air and the evaporation of the cooling water taking place in this class of apparatus effects a saving of the cooling water.

4. *Evaporation Condensers.*—The cooling water having become warmed by exhaust steam is, inside of the condenser proper, by mechanical means brought into close contact with a current of air produced by a fan. An intense evaporation and cooling is thus produced. Such designs were brought forward at a time (1888) when the modern plants were not yet known and means had to be provided to reduce the quantity of cooling water. The success of such designs with a Theisen condensing plant was proven by a 550 horse-power machine. The consumption of condensing water was only 1 pound per pound of steam. In the same plant the condenser absorbed 2.8 per cent. of the useful effect of the steam engine.

Surface condensers accommodate themselves more readily to varying quantities of exhaust steam than jet condensers. Open or tank condensers, on account of the great quantity of cooling water they contain, are especially suitable in cases where the quantities of exhaust steam are very variable.

The action of the different salts contained in cooling water as affected during their passage through the condenser is a matter of the highest importance. This question is especially important with surface condensers, which, as a rule, use bad cooling water—that is to say, cooling water possessing a great tendency to form scale. Of the carbonates and sulphates contained in cooling waters carbonate of lime, carbonate of magnesia and gypsum are most common. In regard to carbonate of lime researches by Prof. Dr. H. Bunte of Karlsruhe show that objectionable settling of carbonate of lime need not be feared in cooling water circulating through the condenser in a continuous current and provided a temperature of 50 to 60 degrees C. is not exceeded. Carbonate of magnesia acts in a similar way. The solubility of gypsum in water is such that a settling of gypsum in condensers is practically excluded.

Fig. 2 represents a closed surface condenser of Balcke & Co. of Bochum. The exhaust to be condensed passes through the pipe B first into an oil separator, to be described more fully later on, and from there into the condenser. The latter consists of a closed wrought iron vessel containing a great number of brass pipes. By means of horizontal partition walls the vessel is divided into four branches, so that the exhaust to be condensed must travel through the vessel four times before it reaches the exhaust pipe E connected with an air pump, L. In the pipe E a water trap is provided to prevent condensed water from going to the air pump. Through the pipe C the condensed exhaust is drawn off. The circulation of the cooling water is kept up by the piston pump K, which takes it by pipe L from the cooling tower, forces it through the pipe D into the condenser, and from there through pipe A back to the cooling tower.

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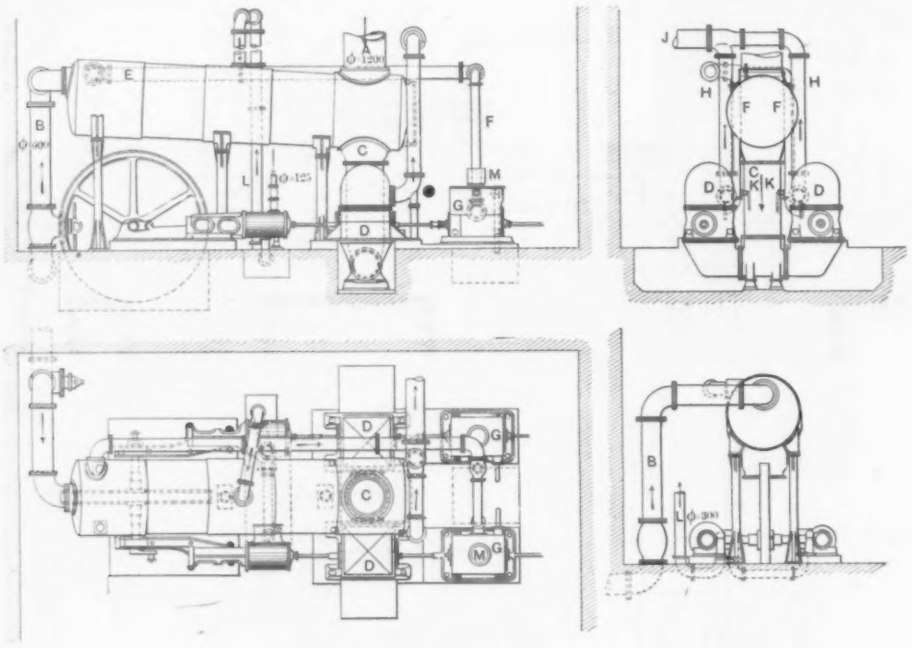

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CENTRAL STEAM CONDENSING PLANTS.

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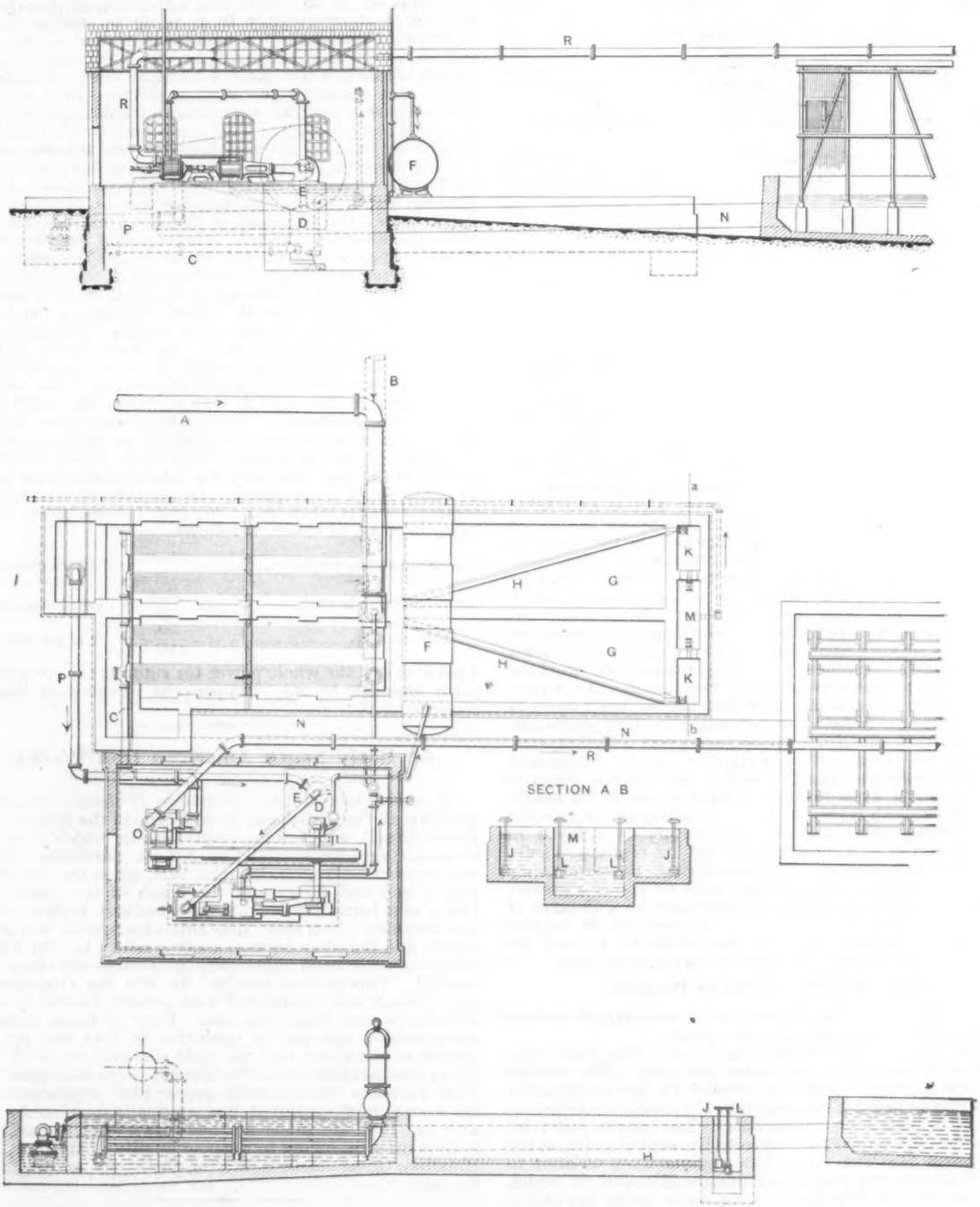

Figs. 10-12.—*Open Condensing Plant at Recklinghausen Shaft.*

CENTRAL STEAM CONDENSING PLANTS.

successful operation day and night. Water to be purified enters at A into a vessel, B, where a considerable part of the oil settles. D receives the special substance, and in C this is mixed with the water. From C the water passes through E to the filter presses, and through F to the settling vessel G. At the bottom of G the purified water uns off, and at the top of G the oil may be thrown off.

When the condensed exhaust must at the same time be freed of air before being used as feed water it is heated up to a high temperature. The Lundkoist oil extractor, built at the Howaldt Works at Kiel, and introduced into the navy, heats the water up to 90 degrees C.

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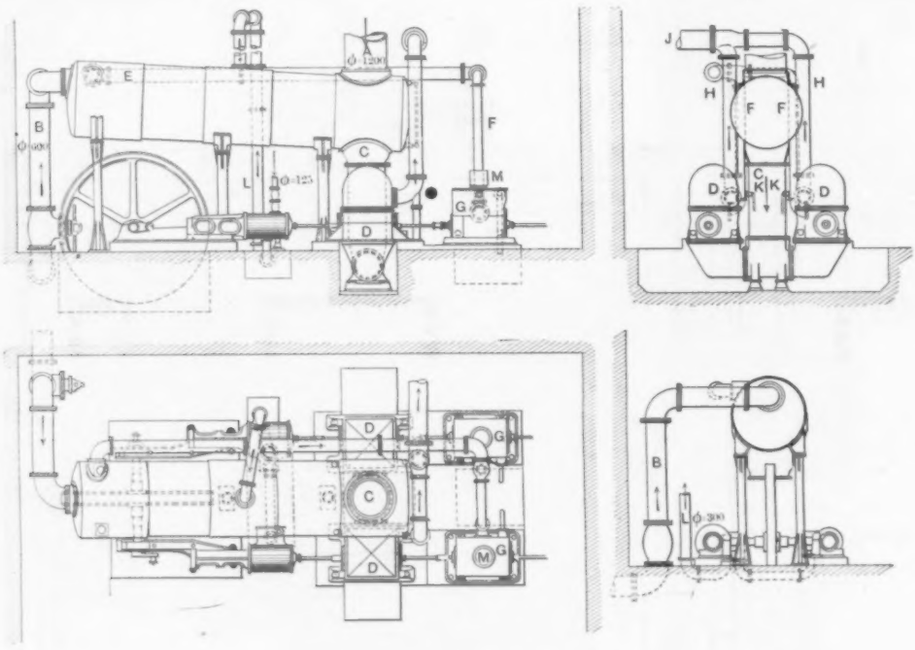

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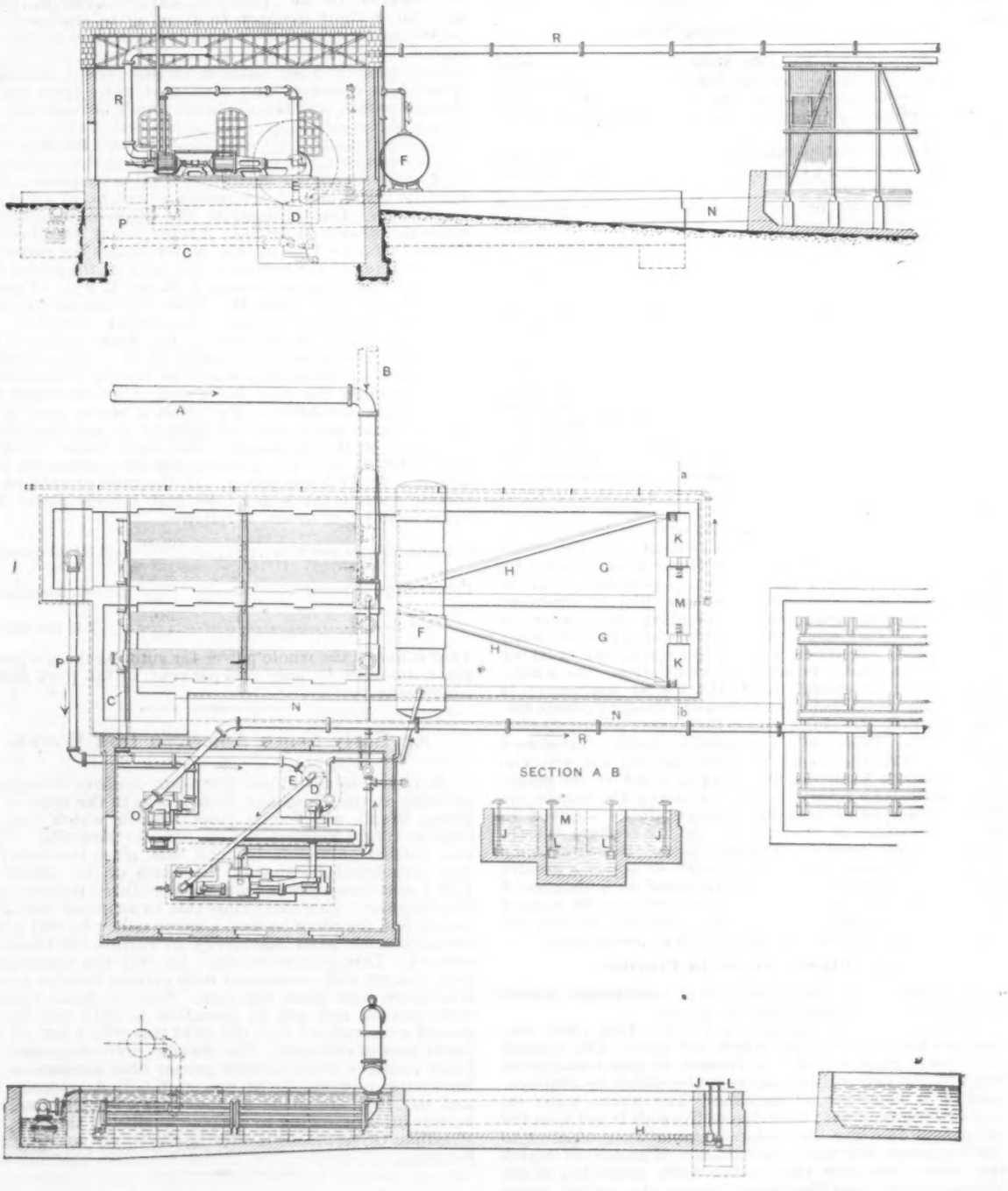

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must be the larger the more slowly the engine connected to the condenser is running. Thus, with hoisting engines, slowly revolving blowers, &c., larger vessels are often inserted into the exhaust steam pipe to reduce the pressure.

Sometimes the exhaust is supposed to re-evaporate water condensed in the exhaust pipe. Theoretical researches show this to be impossible, and therefore means must be provided to take such water out of the exhaust steam pipe. Several designs for its continuous or temporary elimination are in successful operation.

Safety valves must also be attached to the exhaust pipe line, disconnecting the condenser in case it should fail.

Re-cooling of Cooling Water.

About eight years since the plan was proposed to build appliances independent of the condensation plant proper for the purpose of cooling the water after it has been used in the condensing plant, in cases where cooling water was scarce.

All of these designs aim at transferring the absorbed heat from the water to the surrounding air. The systems in practical use are:

1. Cooling tanks or ponds in which the water gives off its heat to the walls and the air. With modern big plants and where property is high in price such tanks cannot be used.

2. Cooling towers. To cool water quickly and effectively it is advisable to spray it in fine drops, and have these drops pass currents of air. Cooling towers are built of wood or iron, and about as high as the warm water is pumped. From the top the water falls over bundles of thorns, inclined surfaces, &c., forming drops, which pass currents of air secured by induced or natural draft. These cooling towers may be divided into open or closed coolers. Open coolers are towers 12 to 24 feet high, provided with means for spraying the water. The design must be such that free circulation of air is guaranteed. The closed or chimney cooler consists of a water spraying apparatus, distributing the water over a great number of boards arranged like stairs, where the water is sprayed in drops. In the middle a passageway is left open to secure accessibility and increase ventilation. The whole apparatus is housed in a wooden frame work covered by boards. In the lower part holes are provided to allow entrance of air. The structure acts like a chimney. Should the area available for building the cooler on happen to be very small the hight of the structure must be increased. Another way of increasing the working capacity of a cooler is artificial ventilation. As a rule, complication attendant upon the use of machinery is avoided, but nevertheless in increasing existing plants mechanical draft sometimes will be found very advantageous.

Koerting Bros. of Koenigsdorf have introduced sprinklers with the object of scattering the hot water so as to promote evaporation. A fixed screw in the nozzle gives the water a rotary motion. Leaving the nozzle the water, owing to its inherent momentum, is sprayed in every direction. A pressure of one atmosphere is sufficient for this purpose. The openings of the nozzle vary from 4 to 25 mm. In cooling tanks or ponds a greater number of these sprinklers are arranged at a distance of about 3 m. one from another. In practice 30 nozzles of 13 mm. diameter have proven sufficient to cool 200 c. m. per hour, a water pressure of 10 m. being used.

Some Plants Erected in Practice.

In the following the dispositions of some larger modern centralized condensing plants are given:

A Weiss Central Condensing Plant.—This plant was designed to cool 1060 c. m. water per hour. The exhaust pipe line A, Figs. 4 and 5, is divided in two branches in front of the central, and delivers the steam to two condensers of identical construction. The warm water escapes through pipe C; the air goes through D and E to the air pumps H. The two steam engines T, in addition to the air pumps, run two rotary pumps, M and N, of which the former one lifts the cooling water to the top of the cooling tower, and the latter pumps the cooled water through the pipe line O to the condenser. Both condensers can work independently, and thus the plant forms a reserve in itself.

A Jet Condensing Plant.—This plant was built by Sack & Kiesselbach of Rath, Germany, to recool 1500 c. m. of cooling water per hour. The exhaust of a number of blowing engines and an electrical central station enters through the steam pipe A, Figs. 6 to 9, into a condenser of 10 m. length and 2 2 m. diameter. Jet water is drawn in through the pipe B from the tank of the cooling tower. The water having circulated through the condenser in opposite direction to the exhaust, it is drawn off by the piston pumps D, and lifted to the cooling tower to which pipe T leads. The air is exhausted through the pipe E by means of the two air pumps G. A compound engine, also connected to the condensation by means of pipe L, keeps all pumps running. The whole plant covers an area of only 120 sq. m.

A Surface Condensing Plant.—This plant was built by the Maschinen & Armaturen Fabrik vormals Klein, Schanzlin & Becker of Freudenthal, Germany, to cool 650 c. m. of water per hour. This plant is in operation at the Recklinghausen II shaft, near Herne, Westphalia. Connected with it are the pumping plant hoisting engine, ventilator, air compressor, coal washer and lighting engine. The plant belongs to the so-called open condensers, especially suitable for very varying quantities of exhaust. The condenser proper consists of four bundles of brass pipes, having a cooling surface of 750 sq. m., and lying in open cooling ponds. The water remains about 13.3 minutes in the condenser. Pipes A and B, Fig. 10, unite at a short distance in front of the condenser, and the exhaust brought in by them is distributed to the pipe system, where it condenses. At the lower end the condensed steam and air enter a vertical vessel, D, Fig. 11, about 1 m. diameter and 2 m. in hight. Here air and water separate, and the air is drawn off through the pipe E by a Weiss air pump. The condensed water is forced by a piston pump of 351 mm. diameter and 200 mm. stroke to a big receiver, F, which is usually termed a preliminary filter, where a partial separation of oil takes place. From here the water goes to two pebble filters, G, of $2 \times 40 = 80$ sq. m. area. One division of the pond may be cleaned while the other is in service. A large part of the oil collects on the surface. The filtered water enters the perforated pipes H lying at the bottom of the layer of the pebble filter and passes from these through J, K and L, Figs. 11 and 12, into the pure water tank M. There it is met by the water from the cylinder traps. The plant furnishes feed water of 50 to 60 degrees C., the waste being 2 to 5 per cent. The centrifugal pump O, of a capacity of 650 c. m. per hour, forces the water to the top of the cooling tower through the pipe R. From there the water runs back to the condenser. The cooling water used in this plant contains much salt, but that in no way hinders the operation of the condenser. The open cooler covers an area of 640 sq. m. The power to run the condensing plant amounts to 49 horse-power. If the ratio of exhaust and cooling water is taken as 1 : 30, and 1 horse-power hour equal to 10 kg. of steam, it follows:

Condensed steam, per hour..... $\frac{695,000}{30} = 21,667$ kilograms.

Indicated horse-power..... $\frac{21,667}{10} = 2,166.7$ horse-power.

Thus..... $\frac{4900}{2,166.7} = 2.26$ per cent.

That is to say, the whole power for running the condensing plant amounts to only 2.26 per cent. of the work done in condensing.

An Early South American Iron Works.

A recent issue of the *Brazilian Bulletin* contains an account of the Ypanema Iron Works in the State of Sao Paulo, Brazil, which date from 1590, in which year two Catalan forges were erected by Alfonzo Sardinha. Work was carried on regularly until 1629, when the enterprise was abandoned because of the death of the owner. In 1760 a new furnace was built with leathern bellows and a trip hammer. In a short time this experiment was abandoned and the place became a sugar mill. In 1801 a blast furnace, with hand machinery to furnish the blast, was erected. This gave no results. In 1811 the Government took charge, and contracted with certain Swedes to erect *stückhofen* and make bar iron. Four of these furnaces were erected and put in operation in 1814, but the ore proved so refractory that the yield was only 1 ton of iron for 41 tons of charcoal. The Swedes were dismissed and blast furnaces erected with proper blast appliances, and the system now employed was gradually developed. Pig and bar iron are made at the works, but the quality of both is inferior, owing to the poor quality of the ore. The Brazilian Government is offering the works and the mines for sale.

The Niagara Falls Hydraulic Power & Mfg. Company, have recently placed an order with R. D. Wood & Co. for three additional turbines of 2500 horse-power capacity each. These wheels are to be installed in the power house of the company at the water's edge in the Niagara gorge, and will be fed with water from the new penstock erected to supply this portion of the station, one wheel being already in operation. It is expected that the wheels will be installed during the present year, and that an order for the fifth wheel will be placed before next spring. This will complete the capacity of the station, and will make necessary an enlargement which is already being discussed.

What is said to be the largest car float ever built has been put in operation between Norfolk and Newport News, Va. It is 275 feet long and was recently completed by Harlan & Hollingsworth of Wilmington, Del., for the Chesapeake & Ohio Railroad.

Marconi Wireless Telegraphy.

In view of the widespread interest in wireless telegraphy, the following abstract of a paper by G. Marconi before the Institution of Electrical Engineers (England) will prove of value as presenting the latest phases of the subject:

Wireless telegraphy, or telegraphy through space without connecting wires, is a subject which has attracted considerable attention since the results of the first experiments I carried out in this country became known. It is not my intention this evening to give my views on or discuss the theory of the system with which I have carried out so many experiments, and by means of which I have worked various installations, but I hope to put before you some exact information of what has been done by myself and my assistants during the last 12 months, and also some reliable data as to the means employed to obtain such results. Much has been published on the subject, I must say with varying accuracy, and there can hardly be any one here altogether ignorant of the general characteristics of the system. Before I go into this subject further I wish to state that any success I have met with in the practical application of wireless telegraphy has been in a large measure due to the efficient co-operation which has been rendered by my assistants.

I think it will not be out of place if I give a brief description of the apparatus.

The Transmitter.

When long distances are to be bridged over, and it is not necessary that the signals should be sent in one definite direction, I employ as transmitter an arrangement as shown in Fig. 1, in which two small spheres, *d d*, connected to the terminals of the secondary winding of an induction coil *c*, are connected, one to earth and the other to a vertical conductor, *w*, which I will call the aerial conductor.

Should it be necessary to direct a beam of rays in one given direction, I prefer to use an arrangement similar to a Righi oscillator placed in the focal line of a suitable cylindrical parabolic reflector, *f*, Fig. 5. The transmitter works as follows: When the key *b* is pressed the current of the battery is allowed to actuate the spark coil *c*, which charges the spheres of the Righi oscillator or the vertical wire *w*, which discharges through the spark gap.

This discharge is an oscillating one, and the system of spheres and insulated conductor becomes a radiator of electric waves. It is easy to understand how, by pressing the key for long or short intervals, it is possible to emit a long or short succession of waves, which, when they influence the receiver, reproduce on it a long or short effect, according to their duration, in this way reproducing the Morse or other signals transmitted from the sending station.

Receiver.

One of the principal parts in my receiver is the sensitive tube, or coherer, or radio conductor, which was discovered, I think I am right in saying, by Professor Calzecchi Onesti of Fermo, and was improved by Branly, and modified by Professor Lodge and others. The only form of coherer I have found to be trustworthy and reliable for long distance work is one designed by myself, as shown in Fig. 2. It consists of a small glass tube, 4 cm. long, into which two metal pole pieces, j^1 j^2, are tightly fitted. They are separated from each other by a small gap, which is partly filled with a mixture of nickel and silver filings. This coherer forms part of a circuit containing the local cell and a sensitive telegraph relay actuating another circuit, which circuit works a trembler, *p*, or decoherer and a recording instrument, *h*.

In its normal condition the resistance of the filings in the tube *j* is infinite, or at least very great, but when the filings are influenced by electric waves or surgings cohesion instantly takes place, and the tube becomes a comparatively good conductor, its resistance falling to between 100 and 500 ohms. This allows the current from the local cell *g* to actuate the relay *n*.

One end of the tube, Fig. 3, is connected to earth, and the other to a vertical conductor, W, similar to that of the transmitter, Fig. 1, or if reflectors are used a short strip of copper, *k k*, is connected to each end, Fig. 4. The length of these strips of copper must be carefully determined, as good results cannot be obtained unless they happen to be of the proper length, which will cause them to be in the tune or syntony with the transmitted oscillations. All the electro-magnetic apparatus in the receiver is shunted by non-inductive resistances in such a manner that there may be no sparking at contacts and no sudden perturbations or jerks caused by the local battery current near the coherer.

I find that the relay tapper and telegraphic instrument, if not properly shunted, produce disturbing effects, the result of which is to prevent the coherer from regaining its sensitive condition after the receipt of electrical oscillations.

No such trouble is experienced when suitable shunts are used, and I attribute to their action in very great measure the success which has been attained with this system. Small choking coils, *k' k'*, are introduced between the coherer and the relay. They compel the oscillating current due to the electric waves to traverse the coherer rather than waste its energy in the alternative path afforded by the relay.

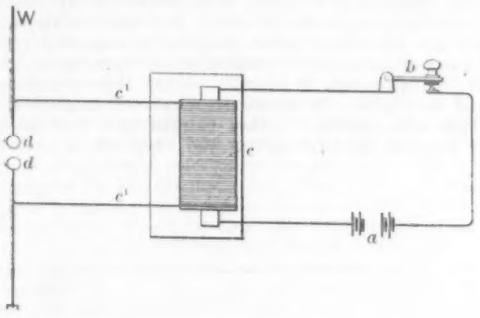


Fig. 1.—Transmitter for Signals Not in One Definite Direction.

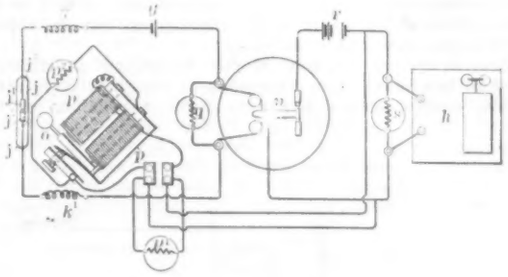


Fig. 2.—Sensitive Tube or Coherer for Long Distance.

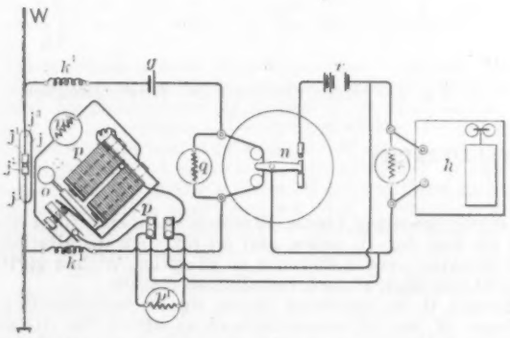


Fig. 3.—Sensitive Tube Connected with Earth and with a Vertical Conductor.

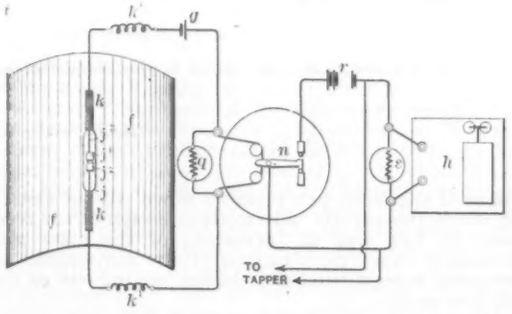


Fig. 4.—Sensitive Tube Used with Reflector.

The oscillations induced on the strips *k k* or aerial conductor W, which acts as resonator, by the radiation from the oscillator affect the sensitive tube. This effect on the tube consists, as we have said, in a great increase of its conductivity, thus completing the circuit and allowing the current from the cell to actuate the relay. The relay in its turn causes a larger battery, *r*, to pass a current through the tapper or interrupter *p*, and also through the electro-magnets of the recording instrument *h*.

The tapper or trembler is so adjusted as to tap the tube and shake the filings in it. If in the instant during which these various actions take place the electrical oscillations had died out in the resonator, the shake or tap given to the tube by the hammer *o* would have restored it to its normal high resistance condition, and the Morse instrument or recorder would have marked a dot on the tape, but if the oscillations continue at very brief intervals the acquired conductivity of the tube *j* is destroyed only for an instant by the tap of the trembler, and immediately re-established by the electrical surgings, and therefore the relay tapper and telegraph instrument are again actuated, and so on until the oscillations from the radiator have ceased.

The practical result is that the receiver is actuated for a time equal to that during which the key is pressed at the transmitting station. For each signal, however short, the armatures of the relay and tapper perform some very rapid vibrations dependent on each other. For it is the action of the relay which starts the tapper, but the tapper by its action interrupts the relay.

The armature of the Morse recording instrument being rather heavy, and possessing a comparatively large inertia, cannot follow the very rapid vibrations of the high signals were obtained at 100 m., and with the same cubes at a hight of 8 m., other conditions being equal, Morse signals were easily obtained at 400 m. With larger cubes of 100 cm. side, fixed at a hight of 8 m., reliable signals could be obtained at 2400 m. all round, equal to about 1½ miles. These results seemed to point out that a system of transmitter and receiver designed according to the lines on Fig. 1—*i. e.*, a radiator of the Hertzian type having one pole earthed and the other connected to a vertical, or almost vertical, conductor, or to a lofty capacity area, and a resonator consisting of a suitable receiver having similarly one terminal connected to earth and the other to an insulated vertical conductor, constitute a system of transmitter and receiver capable of giving effects at far greater distances than the ordinary system of Hertzian radiators and resonators.

Distance Transmitted.

The results I have referred to also show that the distance at which signals could be obtained varied approximately with the square of the distance of the capacities from earth, or perhaps with the square of the length of the vertical conductors. This law has since been verified by a careful series of experiments and found correct, and has furnished us with a sure and safe means of calculating what length the vertical wire should be in order to obtain results at a given distance. It is well to know that the said law has never failed to give the expected results across clear space in any installation or experiment I have carried out, although it usually seems that the distance obtained is slightly in excess of what one might expect. I find that with parity of other conditions a vertical wire 20 feet long at the transmitter and receiver is sufficient

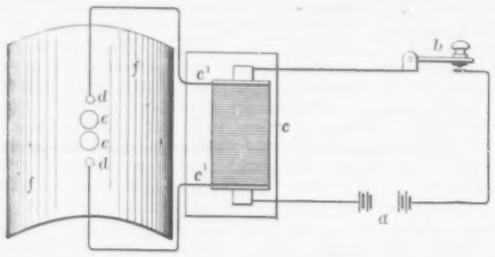


Fig. 5.—Transmitter for Signals in One Definite Direction.

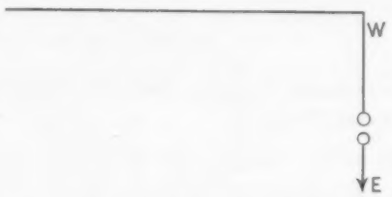


Fig. 6.—Vertical Conductor and Earth Connection.

MARCONI WIRELESS TELEGRAPHY.

tongue of the relay, but remains down all the time, during which the rapidly intermittent action of the receiver lasts. In this way the armature of the inker gives a practically exact reproduction of the movements of the key at the transmitting end, dashes coming out as dashes and dots as dots.

Much has been said and written about coherers being very unreliable and untrustworthy in their action, but I must confess that this has not been in any way my experience. Provided a coherer is properly constructed and used on a suitable receiver it is just as certain in its action as any other electrical apparatus such as an electro-magnet or an incandescent lamp. I have coherers which were made three years ago that are now quite as good if not better than they were at that time, and we have had tubes working for months in most important installations without ever giving trouble. At the installation my company have erected at the South Foreland lighthouse, which, as you probably know, is working to the East Goodwin Lightship, the coherer was mounted on the receiver when we first started in December of last year, and has done its work in a most satisfactory manner ever since.

Conductor and Earth Connection.

I must call your attention to the object and function of the vertical wire *w*. It has been by means of this addition to the apparatus that we have been able to telegraph over distances which have been so far unattained, I think I am right in saying, by any other method of space telegraphy. The way I came to appreciate the great importance of the addition of the conductor W and earth connection E, Fig. 6, to the apparatus was as follows:

(I take this data from a copy of a letter I wrote to Mr. Preece in November, 1896.)

When carrying out some experiments in Italy in 1895 I was using an oscillator having one pole earthed and the other connected to an insulated capacity, the receiver also earthed and connected to a similar capacity. The capacities were in this case cubes of tinned iron of 30 cm. side, and I found that when these were placed on the top of a pole 2 m. high signals could be obtained at 30 m. from the transmitter. With the same cubes on poles 4 m. for communicating 1 mile, 40 feet at each end for 4 miles and 80 feet for 16 miles, and so on. An installation is now working over a distance of 18 miles, with a vertical wire 80 feet high at each installation station.

Should it be necessary to rig up an installation at a distance of, say, 32 miles, such as is about the distance between Folkestone and Boulogne, it is easy to find that a vertical wire 114 feet long would be quite sufficient for that purpose.—[Since the reading of this paper this installation has been finished and messages transmitted most successfully.]

Such laws are applicable only when apparatus properly constructed is employed. With apparatus in which some or several improved details are omitted I find it quite impossible to obtain anything like the results above mentioned. If, say, the impedance coils *k' k''* are omitted the distance (other conditions being equal) is reduced to almost half its original value.

I must also call your attention to such cases as when obstacles like hills or mountains or large metallic objects happen to intervene between the places between which it is desired to establish communication. With all other forms of Hertzian transmitters and receivers with which I have experimented I find it to be quite impossible to obtain any results if a hill, mountain or large metallic object intervenes in any way between the two stations. I am not aware whether any satisfactory results have been obtained by others where such obstacles have intervened, but when the vertical wire system is employed it becomes easy to telegraph between positions screened from each other by hills or by the curvature of the earth. In such cases it seems to be a marked advantage if the aerial conductor is thick or if a capacity area is placed at the top of it.

It is well, also, to note that horizontal wire, even if supported at a considerable hight from earth, seems to be of little or no practical utility in increasing the range of signals. If, say, a vertical wire 30 feet long is employed at both stations and to the top of this is added a horizontal length of 300 feet, as shown in Fig. 6, the distance obtained is greater with the vertical wire without the horizontal length than it would be if both were employed.

These results show that with this system it is not sufficient to use a horizontal radiating or collecting wire, as such a wire would be of no utility for long distance signaling.

I believe that the exceedingly marked advance made by the adoption of the vertical conductor is due to the fact that the plane of polarization of the rays radiated is vertical, and that therefore they are not absorbed by the surface of the earth, which acts as a receiving conductor placed horizontally. As the maximum effect is obtainable when the conductors of the transmitter and receiver are parallel, this makes it necessary to have a vertical conductor connected to one pole of the coherer.

Messages Can Be Made to Affect Only One Receiver.

In any other system intended for the transmission of telegraphic signals by means of electric waves through space the waves have been allowed to radiate in all directions, and would affect all suitable receivers within a certain radius, which of course is dependent on the power of the radiator or transmitter and on the sensitiveness of the resonator or receiver. It is, however, possible, by means of syntonizing arrangements, to prevent, to a certain extent, messages affecting instruments or receivers for which they are not intended, and therefore to select any receiver by altering the wave length of transmitter. By means of reflectors it is possible to project the waves in one almost parallel beam which will not affect any receiver placed out of its line of propagation, whether the said receiver is or is not in tune or syntony with the oscillation transmitted. This would enable several forts or hill tops or islands to communicate with each other without any fear of the enemy tapping or interfering with the signals; for if the forts are on small hights the beam of rays would pass above the positions which might be occupied by the enemy. An illustration of the possibility of directing these waves can be shown by the action of the receiver, which in this case rings a bell only when the radiator in the reflector is directed toward it. These results are much more marked in an open space than in a lecture theatre, as the walls, gilt hangings, &c., tend to reflect the rays in all directions and may alter the results.

In experiments carried out over a distance of 1¾ miles I noticed that only a very small movement of the transmitting reflector was sufficient to stop the signals at the receiving end, which could be only obtained within a latitude of 50 feet to the right or left of what was believed to be the center of the beam of reflected radiations.

There exists a most important case to which the reflector system is applicable—namely, to enable ships to be warned by lighthouses, light vessels or other ships, not only of their proximity to danger but also of the direction from which the warning comes. If we imagine that A is a lighthouse provided with a transmitter of electric wires, constantly giving a series of intermittent impulses or flashes, and B a ship provided with a receiving apparatus placed in the focal line of a reflector, it is plain that when the receiver is within range of the oscillator the bell will be rung only when the reflector is directed toward the transmitter and will not ring when the reflector is not directed toward it. If the reflector is caused to revolve by clock work or by hand it will therefore give warning only when occupying a certain sector of the circle in which it revolves. It is therefore easy for a ship in a fog to make out the exact direction of point A, whereby, by the conventional number of taps or rings, she will be able to discern either a dangerous point to be avoided or the port or harbor for which she is endeavoring to steer.

Distance Signaled with Reflectors.

I have not up to the present attempted to signal any greater distance than about 2 miles with reflectors, but I am of opinion that across clear space it will be quite possible to obtain satisfactory results at far greater distances, especially if the reflectors are accurately made any larger than those I have used. By means of the same apparatus exhibited here I have succeeded in signaling over a distance of 2¼ miles, without of course the use of any real "base" lines, which were supposed to be essential for any distance greater than a few feet.

It is by means of reflectors I obtained the results over 1¾ miles mentioned by Mr. Preece at the British Association meeting of 1896.

I have, however, dedicated more time to the other system—*i.e.*, the vertical wire system.

Results.

A station at Alum Bay, Isle of Wight, and another at Bournemouth, the distance between them being 14½ miles, were erected at the beginning of last year in order to test the practicability of the system under all conditions of weather, and also to afford an opportunity of proving that wireless telegraphy was not a myth but a working reality. I believe some details of the special conditions of these stations would be of interest. The installation at Alum Bay is in the Needles Hotel, and the Bournemouth station (which has lately been transferred to the Haven Hotel, Poole, thereby increasing the distance to 18 miles) was at Madeira House, South Cliff. At each station a pole 120 feet high was used, which supported the aerial conductor, usually a stranded conductor of 7 20 copper wire insulated with wire and tape. A 10-inch induction coil is used at each station, worked by a battery of 100 Obach cells "M" size, the current taken by the coil being at 14 volts from 6 to 9 amperes. The spark discharge takes place between two small spheres about 1 inch in diameter, this form of transmitter having been found more simple and more effective than the Righi oscillator I had previously used. The length of spark is adjusted to about 1 cm.; this, being a much shorter spark than the coil can give, allows a good margin over for any irregularity that might be caused by the break. No care is ever taken to polish the spheres *d d* at the place where the spark occurs. The results seem decidedly better with dull spheres than with polished ones.

System Works in all Weathers.

The first tests were made between the Isle of Wight and a steamer, the hight of the mast on the boat being about 60 feet. Readable signals were obtained up to a distance of 18 miles from Alum Bay. During the course of these experiments I had the pleasure of the company and assistance of Captain Kennedy, R.E., who was good enough to draw a map showing the course of the steamer. It has apparently been thought that weather or varying conditions of atmospheric electricity may interfere with or stop the signals transmitted by this system, but experience of over 14 months of continual every day work has brought me to the conclusion that there is no kind of weather which can stop or seriously interfere with the working of such an installation. We have given demonstrations to several eminent scientists who came down and wanted a show, often when we did not expect them, but on no occasion have they found any difficulty in the work of transmitting and receiving messages between the two stations.

In September of last year, in consequence of the expiration of our lease in Madeira House, Bournemouth, we transferred that station to the Haven Hotel, Poole, thereby increasing the distance to 18 miles. Experiments and tests are carried out daily between the two stations, the improvement in apparatus having allowed us to reduce the hight to 80 feet at each end. An average of fully 1000 words are daily transmitted through the ether each way.

Signaling from a Moving Steamer.

Following this, in July we were requested by a Dublin paper, the *Daily Express*, to report from the high seas the results and incidents of the Kingstown regatta. In order to do this we erected a land station, by the kind permission of the harbor master at Kingstown, in his grounds, where a pole 110 feet high was placed. A steamer, the "Flying Huntress," was chartered to follow the racing yachts, the instruments being placed in the cabin. The hight of the vertical wire obtainable by the mast was 75 feet. A telephone was fixed from our land station at Kingstown to the *Express* office in Dublin, and as the messages came from the ship they were telephoned to Dublin and published in succeeding editions of the evening papers.

The relative positions of the various yachts were thus wirelessly signaled while the races were in progress, sometimes over a distance of 10 miles, and were published long before the yachts had returned to harbor. During the several days the system was in use between the tug and the land station over 700 messages were sent and received, none requiring to be repeated. On trying longer distances it was found that with a hight of 80 feet on the ship and the same hight, as already stated, on land, it was possible to communicate up to a distance of 25 miles, and it is worthy of note in this case that a curvature of the earth intervened very considerably at such a distance between the two positions.

Signaling from Lightship to Lighthouse.

The officials of Trinity House offered us the opportunity of demonstrating to them the utility of the system between the South Foreland Lighthouse and one of the following light vessels—viz., the "Gull," the "South Goodwin" and the "East Goodwin." We naturally chose the one furthest away—the "East Goodwin"—which is just 12 miles from the South Foreland Lighthouse.

The apparatus was taken on board in an open boat and rigged up in one afternoon. The installation started working from the very first without the slightest difficulty. The system has continued to work admirably through all the storms, which during this year have been remarkable for their continuance and severity.

On one occasion, during a big gale in January, a very heavy sea struck the ship, carrying part of her bulwarks away. The report of the mishap was promptly telegraphed to the superintendent of Trinity House, with all details of the damage sustained.

The hight of the wire on board the ship is 80 feet, the mast being for 60 feet of its length of iron and the remainder of wood. The aerial wire is let down among a great number of metal stays and chains, which do not appear to have any detrimental effect on the strength of the signals. The instruments are placed in the aft cabin, and the aerial wire comes through the frame work of a skylight, from which it is insulated by means of a rubber pipe. As usual a 10-inch coil is used, worked by a battery of dry cells, the current being taken at about 6 to 8 amperes at 14 volts.

Various members of the crew learned in two days how to send and receive, and in fact how to run the station, and owing to the assistant on board not being as good a sailor as the instruments have proved to be, nearly all the messages during very bad weather are sent and received by these men, who previous to our visit to the ship had probably scarcely heard of wireless telegraphy and were certainly unacquainted with even the rudiments of electricity. It is remarkable that wireless telegraphy, which had been considered by some as rather uncertain, or that might work one day and not the next, has proved in this case to be more reliable, even under such unfavorable conditions, than the ordinary land wires, very many of which were broken down in the storms of last month.

The instruments at the South Foreland Lighthouse are similar to those used on the ship, but as we contemplate making some long distance tests from the South Foreland to the coast of France the hight of the pole is much greater than would be necessary for the lightship installation.

We found that 80 feet of hight is quite sufficient for speaking to the ship, but I am of opinion that the hight available on the ship and on shore would be ample even if the distance to which messages had to be sent were more than double what it is at present.

Used on War Ships.

My system has been in use in the Italian navy for more than a year, but I am not at liberty to give many details of what is done there. Various installations have been erected and are working along the coast, two of these being at Spezia.

Distances of 19 miles have been bridged over in communicating with war vessels, although 10 miles have been found quite sufficient for the ordinary fleet requirements.

The Robins Belt Conveyor.

The reduction of belt conveying to a scientific method of carrying material in bulk has been of great interest to those whose work entails the problem of handling coal or ore. Three years ago we published extracts from a paper on the subject which Thomas Robins, Jr., read before the American Institute of Mining Engineers. Shortly afterward he incorporated the Robins Conveying Belt Company, 147 Cedar street, New York, for the purpose of carrying out and perfecting the ideas and suggestions contained in his paper. The parts of this machinery have been made interchangeable, and their capacity, durability and power requirements have been thoroughly tested. Instead of having a multiplicity of parts this system has but two—the belt and the idlers. The conveying surface is separated absolutely from the highly lubricated running parts, thereby permitting each to perform its function with the highest efficiency. The result is a system which insures complete freedom from shutdowns. The material is carried on the belt without breakage or contact with the running parts, or noise, and is delivered at one or more points in quantities as great as 1200 tons per hour when desired. The belts can be run at a very considerable angle, although no flights are used. The power requirements are comparatively low, owing to lack of friction, and in cases where trestles must be used the lightest construction suffices, as the load is small but constant.

It was to the belt itself that Mr. Robins first turned his attention, and the cross section, Fig. 3, shows the design which has been finally adopted as the only one which has been found to give satisfaction under all conditions. The reinforcement of rubber at the center, where the load is principally carried, serves to protect it from wear, while the extra plies of duck at the sides render them stiffer and cause the belt to conform readily to the troughed shape of the idlers.

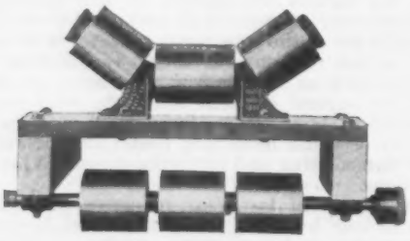


Fig. 1.—Idler.

Fig. 2.—View Along the Belt.

Fig. 3.—Cross Section of Belt.

Fig. 4.—View of Belt Conveyor at Coal Breaker.

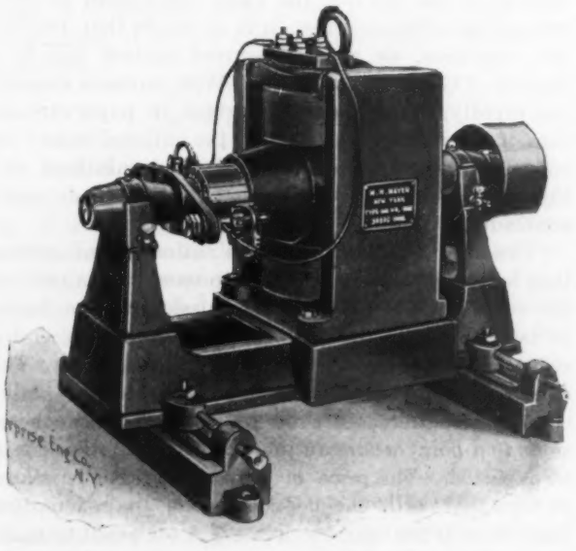
THE ROBINS BELT CONVEYOR.

After experiments with spool and cone pulleys and with two inclined pulleys, the three pulley arrangement shown in Fig. 1 was selected as the standard idler on account of its manifest advantages. The idlers need but little explanation, save that in the process of lubrication through the hollow shafting by the grease cups all bearings are rendered dust proof.

The two cuts of the belt in operation illustrate some of the various uses to which the system is adapted. Fig. 4 is from a photograph taken at the No. 6 breaker of the Pennsylvania Coal Company at Pittston, Pa., and shows a long conveyor running under the screens and carrying off the slate and waste to the culm pile. The belt conveyor has been used extensively in the last year for carrying off waste from coal breakers and washeries and tailings and refuse from mining and refining plants. In this connection its ability to elevate and to deliver at any point along its length has been of advantage, as it has been also in the handling of coal in pockets, power houses and storage piles. Fig. 3 shows a belt conveyor running under the new limestone crusher of the New Jersey Zinc Company, at Franklin Furnace, N. J. The stone is carried as fast as crushed to large bins, whence it is loaded directly on the cars for shipment.

The Mayer Dynamos and Motors.

The improved dynamos and motors built by the Maxwell M. Mayer Electric Company, 2369 Second avenue, New York, are of the two-pole iron clad type. The whole



THE MAYER DYNAMOS AND MOTORS.

magnetic frame is cast in one piece of open hearth steel which is bolted to an iron base which has the supports for the pillow blocks cast with it. These supports are bored out at the same time as the pole pieces, thus securing perfect alignment. The field coils are separately wound on well insulated metal spools which are slipped over and secured on the magnet cores. The armatures are of the slotted drum type and are finely laminated to avoid heating due to eddy currents. They are insulated with mica throughout and the winding is such as to secure electrical and mechanical balance. The carrying capacity of the conductors is large so that the machines can stand considerable overloading without injury. The carbon brushes are used in self feeding brush holders, and the tension on the brushes can be changed at will. The shaft runs in self oiling phosphor-bronze bearings. These machines are built in four sizes—1, 2, 3 and 5 horse-power.

The course of Arctic currents is to be tested by means of casks set adrift at certain points. The details were arranged by Admiral Milville, and are being carried out by the Government and the Geographical Society of Philadelphia. The casks are described as follows: Each is 36 inches long and 12 inches inside diameter, with sides 1¼ inches thick. They are made of shaped, heavy oak staves, and have conical points; they are bound with heavy iron hoops, designed to withstand corrosion for several years. An opening in the center is secured with a brass rod and is protected by rubber gaskets. Each cask will be numbered, and contain inside a glass bottle, hermetically sealed, which is to contain the record made by the vessel at the time of dropping the cask overboard; this record will include the date, place, exact longitude and latitude, name of vessel, home port, &c. A duplicate of this record is to be sent to the Hydrographic Office; and captains of vessels are instructed to look out for these casks; to open them, take a copy of the contents and return them to the sea, with the record of finding added. A money prize is awarded for this service.

Liquid Fuel.

At a recent meeting of the British Society of Arts Sir Marcus Samuel, who has been engaged for several years in developing the oil fields of Borneo, read a paper on "Liquid Fuel," which contained several points of interest, particularly concerning the use of oil as fuel in steamships. In speaking of the development of the Borneo fields, he stated that the first steamer employed in the business of transporting oil in bulk through the Suez Canal was a vessel of 4000 tons burden of oil, while the largest of those employed now carried 6500 tons; three steamers are in course of construction to carry 9000 tons of oil each, or 3,000,000 gallons. There was an enormous future before this fuel, even if it only depended upon its relative cost compared with coal; but when they came to the collateral advantages it enjoyed, the benefits of using it, as compared with coal, were simply overwhelming. As showing the immunity from danger, he said that, the business having been conducted for now over seven years, not a single accident of any kind had happened, either to a ship while engaged in carrying oil, or to an installation. Dealing with the relative efficiency of oil and coal, the speaker instanced the performance of the boiler of a launch used in Hong Kong. In this repeated and carefully checked tests had shown that, while the consumption of coal was 7 pounds per minute, the consumption of oil was only 2 pounds per minute. The pressure of steam realized by 7 pounds of coal was from 96 pounds to 105 pounds, while that raised by 2 pounds of oil was sustained at 116 to 120 pounds. The speed realized in the launch under coal had never exceeded 9 knots, while under oil a speed of 10¼ knots was readily maintained. The author then dealt with the application of oil fuel to locomotives, and, in conclusion, said oil could be carried in spaces which it was impossible to utilize in any other way.

Oil carried in the bottom of a steamer, below the water line, would be impervious to shot, and by the system of service tanks, patented by Sir Fortescue Flannery, as oil was pumped out of the ballast tanks of a steamer water could readily be taken in to replace it. The importance of the new departure had been promptly recognized by Lloyds, who had issued regulations allowing liquid fuel having a flash point of over 200 degrees F. to be carried in steamers' ballast tanks, and this would greatly facilitate its general use. The speaker said that the experimental stage in the burning of liquid fuel had long since been passed. No less than 7,000,000 tons per annum were consumed in Russia for liquid fuel alone. There are no fewer than eight steamers at present engaged in the Eastern trade which were fitted for it, and the results attained had answered the expectations of their owners beyond their most sanguine anticipations, while large numbers of vessels were under construction expressly for the use of liquid fuel, and a great number of steamers hitherto burning coal were also being altered. In the Far East tanks had been erected at ports ranging from Yokohoma to Suez, including all the Indian ports, while cargoes of the Borneo oil had also been landed at the principal ports, and 4000 tons was on passage to London.

The Baldwin Locomotive Works, Philadelphia, have received an order for 60 engines from the Indian Government. The company intend to complete the entire order in four months. Several of these engines will be used on the new railroad from India to Burmah.

The American Ship Building Company have leased the property of the Union Dry Dock Company, Buffalo, N. Y., for a period of 99 years. It is also reported that the first-named concern have arranged to acquire the Craig Shipyard at Toledo, Ohio. This will give the combination every shipyard on the lakes, with the exception of F. W. Wheeler's yard at Bay City, Mich.

A school of unique character has been established in Chicago. It is designed to impart instruction in the art of writing advertisements. It teaches composition, the use of words, type, display, illustrations, lithography, paper, rates, space and other details involved in the advertising business. The students already enrolled comprise newspaper men, clerks, printers, stenographers, &c.

The Iron Age.

New York, Thursday, April 20, 1899.

DAVID WILLIAMS COMPANY, - - - - - - - PUBLISHERS.
CHARLES KIRCHHOFF, - - - - - - - - EDITOR.
GEO. W. COPE, - - - - - - - - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - - - - - - - - HARDWARE EDITOR.
JOHN S. KING, - - - - - - - - - BUSINESS MANAGER.

The Western Rolling Mill Scale.

The rolling mill workmen of the West who belong to the Amalgamated Association are electing delegates to represent them on the Wage Committee of that organization which will meet in May to prepare a scale of wages for tonnage men. The scale will be submitted to the manufacturers in June, and upon its adoption will depend the continued operation of the rolling mills after July 1. The workmen are naturally hopeful that they will be able to secure the adoption of a scale which will give them a substantial advance in their earnings. Some are rather extravagant in their expectations, and talk of asking for an advance of 25 per cent. Others, however, are more conservative and fix 10 per cent. as the figure. But that an increase will be asked over the present schedule seems to be a certainty. The workmen feel that they are entitled to a share of the country's prosperity greater than that coming to them merely by the operation of sliding scales of wages. This is not an unreasonable ambition, as they certainly have had to bear a large part of the burden of the financial depression from which we have happily been relieved.

It will be interesting to see how this matter will be handled in the changed conditions now prevailing in the Western iron trade. The number of manufacturers with whom the workingmen must treat has been heavily reduced by the formation of consolidations. Instead of 50 or more independent mills, it now appears as if barely half a dozen separate manufacturing concerns are left to treat with the Amalgamated Association. Quite a number of mills which have not been absorbed by consolidations are working without regard to Amalgamated Association rules, and these are therefore not taken into consideration. It will be seen from this view of the situation that the manufacturers will present a more compact front than in any previous year when considering the settlement of the wage scale. This makes them much stronger. In contests over the wage scale they have in the past been obliged frequently to yield to the workingmen's demands because of the financial weakness of some concerns who were thus unable to endure the strain of a long suspension of operations. Their strength may now reasonably be expected to enable them to successfully withstand a demand for an extravagant advance, if it should be made. The Amalgamated Association will not be able to enforce the adoption of a schedule entirely of their own making.

The situation on the other hand is a hopeful one for the workingmen. The manufacturers are undoubtedly desirous of making a good financial showing this year. The great consolidations will certainly strive by all means in their power to do this so as to make their stock pay dividends. With prices for iron and steel at their present altitude they would be foolish indeed to engage in a struggle over the rate of wages that would cause them to lose all earnings for even a month, unless the rate demanded by the workingmen should be so high as to seriously cut into the profits of operation.

Consumers of merchant bars are more interested than usual in the developments in this direction. If a disagreement should arise, which would precipitate a long struggle, much embarrassment would be occasioned in securing a sufficient supply. With all the mills in active operation, as they now are, some difficulty is experienced in keeping all the channels of consumption filled. No stocks are in reserve in either manufacturers' or consumers' warehouses, while jobbers are having much trouble in keeping full assortments of the standard sizes. A month or two of idleness among the rolling mills this summer would play havoc with consuming interests.

The Bond Secured Circulation.

The researches of the actuary of the Treasury into the possible profits of bank issues if a circulation to the par value of the bonds were permitted, either with or without taxation, simply afford additional demonstration of the fact that the bank circulation is bond secured in a double sense; it is in bonds that prevent its expansion, as well as secured against loss by a deposit of Government bonds. With business expanding rapidly, with an actual shortage in paper circulation, if not in money generally, the national banks are reducing instead of increasing their circulations, and the actuary's figuring shows that this tendency must continue.

The utmost relaxation of the national bank system that has thus far seemed likely to secure a majority of the votes in Congress is the permission to the banks to issue notes to the par value of the bonds, and a reduction of the present tax on circulation. The actuary shows that the margin of profit to the banks could not be increased even by both of these concessions to a point where an increase of circulation could be expected. The price of Government bonds is now so high that with the deductions for the redemption fund there is too narrow a margin for profit to make the privilege of note issues attractive to bankers. At the quotation of March 1 for 4 per cent. bonds, 113⅛, there is a profit under existing law of a little more than one third of 1 per cent. in taking out circulation as compared with directly lending the money that must be invested in bonds if circulation is to be issued. If bonds could be issued to par, with the present rate of taxation, the margin of profit would be a little over four-fifths of 1 per cent., and if the tax were removed the margin would be nearly 1¾ per cent. Even this would not be sufficient to induce banks to make any large additions to the circulation.

But if the banks undertook to increase their circulations they would have to buy more bonds and the price would certainly advance. If bonds advanced 1 per cent. the margin would fall under the present law to less than ¼ per cent., and if bonds advanced 5 per cent., which is not unlikely, there would be a loss of nearly one-third of 1 per cent. If banks were allowed to issue to the face of their bonds, and the tax were repealed, an advance of 5 per cent. would reduce the margin of profit to less than 1 per cent.

The situation is permanent, except that it is likely to become worse. Every advance in Government bonds means less profit in circulation, and already most of the banks of the large cities are carrying minimum circulations, and with an increasing demand for money the banks are surrendering their circulation

and taking back their bonds because they can do better with their money. It is evident enough that the small remedies of repealing the tax and permitting circulation to the face of the bonds is wholly inadequate.

So far as the present demand is a demand for paper money in distinction from gold it could be met in great measure by the issue of gold certificates, to which the Treasury officials seem to be unnecessarily opposed. But even this would not provide the credit currency which the business of the country demands, and a currency elastic enough to respond to the greater or less demands of business. There must be a contraction of the currency when there ought to be some increase, or the paper circulation must be increased in one of two ways—an issue by the Treasury, or an issue by the banks secured by their general assets. The former would be going back to greenbackism, and it is not conceivable that the country would do this after 25 years of discussion and education. The other is the reorganization of our banking system on the plan recommended by the Indianapolis conference and in part adopted by the Banking and Currency Committee of the House of Representatives. The situation is rapidly creating a necessity for banking reform.

A Welcome Lull.

It is a novel experience to find manufacturers pleased that inquiries for their products are diminishing. For a long time they were troubled because their business was too light, buyers being inclined to take rests which were unpleasantly frequent or disagreeably protracted. They almost despaired that the day would ever come again when they would be driven to their full capacity and would feel indifferent toward buyers. But so many cases of this kind are now developing that they are becoming a matter of comment in market reports. Manufacturers feel that customers who favored them with trade during the long business depression are entitled to considerate treatment when activity sets in and the demand is squarely up with the supply. But their old customers are so far exceeding past requirements, and so much new trade has developed, that in many lines not enough can be turned out to go round. The scarcity thus causes anxiety for the future among consumers, and the danger was fast becoming imminent that orders for future delivery would be placed so far ahead as to make prices rise much higher than their present high level. Such a contingency is earnestly deprecated by all manufacturers of experience. The effects of very high prices are too demoralizing. Hence, a period of comparative quiet is welcomed as affording an opportunity to work off accumulated orders and put factories in shape to handle new business with more satisfaction to consumers. The opinion is expressed in numerous quarters that if business should be rather inactive for 60 days or more the iron trade would be relieved considerably, as a much better prospect would then be opened for meeting the requirements of the country in the last half of the year. No fear is entertained that a lull in the buying movement means a serious reaction from prosperous conditions. The evidences are too strong of their continuance for some time to come, certainly into next year.

The usual spring labor troubles are reported in the building trades of the large cities. Chicago is probably having the most serious time. Work on many buildings in that city is now at a standstill on account of disputes involving stone cutters, sheet metal workers, ornamental iron workers and others. Last week the plumbers were out almost the entire week, having struck for an advance of 25 cents per day, which was at length conceded by the employers. These occurrences are having a discouraging effect on new building projects. A settlement, however, will probably soon be made so that very great harm will not be done. At this time employers are inclined to concede reasonable demands for increased wages because general conditions warrant some advance.

CORRESPONDENCE.

Wire in Mexico.

To the Editor: Since the wire consolidation became an established fact and prices began to rise some apprehensions were naturally entertained by the two wire nail factories and other manufacturing companies in this city who largely employ all kinds of wire in their manufactures. This advance being characteristic of all the wire markets of the world, and goods from Europe taking such a long time to reach Monterey, our leading factories decided to keep on buying from the United States as they used to do before. Instead of treating old customers as they deserved, tyrannical conditions were named to them by the very mills which formerly used to be a good deal more liberal. Such being the case, rumors began to circulate as to establishing a wire mill in this city, which would not only supply Monterey's requirements, but extend to the whole republic. It was moreover asserted that the Mexican Government had offered its support and would as soon as the mill started in operation levy exceedingly high duties on all kinds of wire, thus protecting the home industry against any possible intent on the part of the consolidation to sweep them out by ruinous low prices. Some one, though, mentioned the fact that if the consolidation cared for the Mexican market they would start another mill in competition with the existent and compel it to close its doors; this is, indeed, an undeniable fact.

In case the present rumors do not find any practical realization, it would still be a splendid transaction, even for the consolidation itself, to start a mill in Mexico, labor being cheaper and there being every possibility of selling wire manufactured in the country at a price slightly below the price it would cost delivered here with freight, duties and expenses added to the cheapest obtainable price in the States, and on such wires which only bring f.o.b. mills or New York, say 10 per cent., there would be at least, selling it as aforesaid, a proportion from 40 to 50 per cent. higher.

Monterey is the city in the Republic which consumes the largest quantity of wire, and is therefore the best point where any manufacture of the kind can be started confidently, and from here, on account of the transportation facilities and railway connections, the whole Republic can be commanded easily and the money which lies in this business picked up with enormous profits by any enterprising man or company.

Requesting you to kindly give publication to this letter in your valued paper, and hoping that the same may fall into hands of persons interested in the question.

X. Y. Z.

MONTEREY, MEXICO, April 11, 1899.

OBITUARY.

JAMES LOWE.

James Lowe of the old established iron firm of Butterworth & Lowe, Grand Rapids, Mich., died at Grand Rapids on April 5, aged 80 years.

JOSEPH M'CLURE.

Joseph McClure, one of the pioneers in the industrial development of the Shenango Valley, died March 29, near Sharon, Pa., aged 89 years. In 1846 he formed a partnership with B. B. Vincent and David Himrod, under the firm name of Vincent & Himrod, and erected and operated the first blast furnace near Sharpsville, Pa.

REESE JAMES.

Reese James, one of the most respected citizens of Houghton, Mich., died there on April 3, aged 68 years. Mr. James was born in Swansea, South Wales, on March 5, 1831, emigrating to America in the year 1850 and locating at Seymour, Conn., where he engaged with the New

Haven Copper Company, remaining in the employ of the company until 1871. In that year he went to Houghton, Mich., to superintend the construction and operation of the Houghton Copper Works. In the panic of 1873 this mill was closed and Mr. James returned to Connecticut and engaged with the Ansonia Brass & Copper Company. In 1881, upon the reopening of the rolling mill at Houghton, he again went to Lake Superior, accepting the position of superintendent. Upon the closing of the Houghton mill a second time deceased went to Rome, N. Y., where he transformed an iron foundry into a copper rolling mill. He remained there two years and then returned to Houghton, where he had lived ever since.

JAMES WOODS.

James Woods, head of the iron manufacturing firm of Woods, Lewis & Co. and one of the most prominent citizens of Nashville, Tenn., died suddenly at his home in that city on April 12, at the age of 64 years. He was born in Nashville and was the youngest son of James Woods, senior member of the firm of Woods, Yeatman & Co., bankers and iron operators. After graduating at Princeton College he took charge of the office of the Cumberland Iron Works in Stewart County, Tenn., which were operated by Woods, Yeatman & Co. At the close of the war Mr. Woods engaged in the manufacture of iron at the site of his father's establishment in Stewart County. The style of the firm was Woods, Lewis & Co. Mr. Woods was general manager of the business for a number of years until he moved to Nashville about 19 years ago. He held a high position in the business and social life of that city, and his name was at the head of many of the largest and most important enterprises in Nashville.

JAMES L. HODSON.

James L. Hodson of the firm of S. & J. Hodson, machinists, of Philadelphia, died on April 17 at his residence at Roxborough, Pa., at the age of 64 years. He was born at Bolton, England, and came to this country with his parents in 1842. He learned the trade of machinist in Philadelphia and for the past 37 years had been in partnership with his brother in the machinery business.

PERSONAL.

George W. Short, long identified with the industries of New Castle, Pa., having had charge of the construction of the great tin plate plant, has removed to St. Louis to manage the rolling mills and steel works of the National Stamping & Enameling Company.

John Evans, assistant superintendent of the Brier Hill Iron & Coal Company, Youngstown, Ohio, has been appointed superintendent of the West Duluth blast furnace, recently acquired by John M. Thomas and others.

J. S. Oursler of Pittsburgh, Pa., has been appointed furnace superintendent at Mingo Junction by the National Steel Company in the place of George A. Dean, who has resigned the position after 28 years' service, first with the Junction Iron & Steel Company and later with the Ætna-Standard Iron & Steel Company.

W. J. Clarke, general manager of General Electric Company's foreign department, sailed on the "Etruria" last week. He will remain four months to complete organizations of his department and to superintend the installation of General Electric apparatus on London, Bristol and Dublin tramways.

Col. Adelbert R. Buffington has been appointed as chief of the United States Ordnance Department in succession to the late Brig.-Gen. D. W. Flagler.

James S. Keefe, general traffic manager of the American Steel & Wire Company, has taken charge of the fleet of steamers recently acquired by the company for carrying ore.

Frank H. Kennedy, for several years connected with the Carnegie Steel Company at Homestead, Pa., has accepted the position of general manager of the George B. Sennett Company, Youngstown, Ohio.

J. Yoshti and Y. Fugita, iron and steel merchants of Japan, sailed for Europe from New York on Wednesday after a tour of the West, where they have examined several iron and steel plants, with a view, it is said, to purchasing.

It is reported that William Woodville Rockhill of Washington, D. C., who has just resigned his post as United States Minister to Greece, Roumania and Servia, will be appointed director of the Bureau of American Republics.

We are officially advised that the statement that Wm T. Manning, consulting engineer of the Baltimore & Ohio Railroad, at Baltimore, Md., would retire from that position and establish a rail mill at Cumberland, Md., to manufacture his patent rail is untrue.

Wireless Telegraphy.

Concerning the system of wireless telegraphy of Signor Marconi, described elsewhere, Prof. F. A. Fleming writes as follows to the London *Times:*

I cannot help thinking that the time has arrived for a little more generous appreciation by his scientific contemporaries of the fact that Signor Marconi has, by minute attention to detail, and by the important addition of the long vertical air wire, translated one method of space telegraphy out of the region of uncertain delicate laboratory experiments and placed it on the same footing as regards certainty of action and ease of manipulation, so far as present results show, as any of the other methods of electric communication employing a continuous wire between two places. This is no small achievement. The apparatus, moreover, is ridiculously simple and not costly. With the exception of the flagstaff and 150 feet of vertical wire at each end, he can place on a small kitchen table the appliances, costing not more than £100 in all, for communicating across 30 or even 100 miles of Channel. With the same simple means he has placed a lightship on the Goodwins in instant communication, day and night, with the South Foreland Lighthouse. A touch on a key on board the lightship suffices to ring an electric bell in the room at South Foreland, 12 miles away, with the same ease and certainty with which one can summon the servant to one's bedroom at a hotel. An attendant now sleeps hard by the instruments at South Foreland. If at any moment he is awakened by the bell rung from the lightship, he is able to ring up in return the Ramsgate lifeboat, and, if need be, direct it to the spot where its services are required, within a few seconds of the arrival of the call for help. In the presence of the enormous practical importance of this feat alone, and of the certainty with which communication can now be established between ship and shore without costly cable or wire, the scientific criticisms which have been launched by other inventors against Signor Marconi's methods have failed altogether in their appreciation of the practical significance of the results he has brought about.

The public, however, are not in the least interested in learning the exact meed of merit to be apportioned to various investigators in the upbuilding of this result. They do, however, want to know whether the new method of communication across the Channel, established by the expenditure of a few hundred pounds, will take the place to any considerable extent of submarine cables which have cost many thousands of pounds to lay and equip. They do also desire to learn what reasons, if any, will prevent every lighthouse and lightship around our coasts from being forthwith furnished with the necessary apparatus for placing it in instantaneous and secure connection with the mainland. They also hope to hear that the method can be applied to enable ships to be able, in addition, to communicate instantly in case of need with shore stations. To understand how far these things can be done, and to appreciate the necessary or present limitations of the method, it is requisite to explain that each vertical wire or rod connected to a Marconi receiving or sending apparatus has a certain "sphere of influence." Signor Marconi has proved by experiment up to certain limits that the distance to which effective signaling extends varies as the square of the hight of the rod. A wire 20 feet high carries the effective signal 1 mile, 40 feet high 4 miles, 80 feet, 16 miles, and so on. Up to the present time he has not yet discovered any method of shielding any particular rod so as to render it responsive only to signals coming from one station and not from all others within its sphere of influence. In spite, however, of what has been said, there is no inherent impossibility in attaining this desired result. At present all signals sent from the South Foreland to France affect the receiver on board the Goodwin Lightship. But this offers no difficulty. In an ordinary electric bell system in a hotel the servant recognizes the room from which the signal comes by means of a simple apparatus called an indicator, and a very similar arrangement can be applied to distinguish the origin of an ether wave signal when several instruments are at work in a common region. Subsequent inventions, as also, perhaps, the promulgation of some necessary Board of Trade regulations for the use of the ether, will prevent official ether wave receivers from being disturbed by vagrant electric waves sent out by unauthorized persons in their neighborhood. The practical upshot, however, of the matter is that at present if more than two stations are not established within certain regions, these stations pair and pair can communicate with each other freely and regularly by means of ether wave signals sent out and received by long vertical rods or wires. No state of the atmosphere, and neither darkness nor storm, interrupts so far as yet found the freedom of communication.

Up to the present time none of the other systems of

wireless telegraphy employing electric or magnetic agencies have been able to accomplish the same results over equal distances. Without denying that much remains yet to be attained, or that the same may not be affected in other ways, it is impossible for any one to witness the South Foreland and Boulougne experiments without coming to the conclusion that neither captious criticism nor official lethargy should stand in the way of additional opportunities being afforded for a further extension of practical experiments. Wireless telegraphy will not take the place of telegraphy with wires. Each has a special field of operations of its own, but the public have a right to ask that the fullest advantage shall be taken of that particular service which ether wave telegraphy can now render in promoting the greater safety of those at sea; and that, in view of our enormous maritime interests, this country shall not permit itself to be outraced by others in the peaceful contest to apply the outcome of scientific investigations and discoveries in every possible direction to the service of those who are obliged to face the perils of the sea. If scientific research has forged a fresh weapon with which in turn to fight nature "red in tooth and claw," all other questions fade into insignificance in comparison with the inquiry how we can take the utmost advantage of this addition to our resources.

Plans of the New War Ships.

WASHINGTON, April 18, 1899.—The Board of Construction of the Navy Department has nearly completed the work of designing the six protected cruisers authorized by the new Naval Appropriation bill, and proposals for their construction will be advertised for in about six weeks. The fact that the contracts for the three battle ships and three armored cruisers authorized by the bill cannot be let until bids have been made and accepted for their armor has rendered it unnecessary for the Board of Construction to take up those ships at this time, and attention has therefore been concentrated upon the six cruisers, the designing of which will mark the adoption of an entirely new policy by the Navy Department in the building of ships of this class. Heretofore the Department has endeavored to construct the fastest and most powerful war ships of a given tonnage that could be built, but in the designing of the six new cruisers a wide departure will be made. In describing the new vessels as outlined by the board, Chief Constructor Hichborn said to the correspondent of *The Iron Age*:

"In the building of these vessels the Department will provide an entirely new class, which I do not doubt will prove to be one of the most serviceable types ever designed in this or any other country. These ships will be built for long trips without coaling and for long service on stations near or far without docking. In armament they will be well equipped, but no effort will be made to mount the largest possible guns upon them, for the service to which they will be put will require them to be something more than mere gun platforms.

"The law authorizing the construction of these cruisers contemplates a vessel of about 2500 tons, but we shall be able to build them somewhat larger, and in this and many other respects they will differ from the 'Marblehead' class, to which it has been erroneously stated they belong. The increased size will be devoted to coal capacity and the design contemplates the carrying of coal enough to steam 8000 miles at economical speed. This will mean that these vessels will be available for emergency service for which no other vessels of the navy would be fitted; for in making long voyages they will be independent of coaling stations, which is a most important point in time of war. In point of speed we are now figuring on between 16 and 17 knots, which is somewhat less than the nominal speed of the 'Marblehead,' which is 18 knots. In this connection we believe the Department has learned a lesson that will be of special service. Ships of this class built to make 18 knots have their hulls crowded with machinery, which is never fully utilized under service conditions. While the 'Marblehead' is designed to make 18 knots and can do so on a river or perfectly smooth ocean course, as soon as she gets into a seaway her speed is knocked down 2 or 3 knots and she is actually carrying a considerable amount of machinery that develops no service. Now, with the new type we shall devote the space heretofore given to unnecessary machinery to coal capacity, and thus we shall be able to steam much greater distances at as high a rate of speed as vessels of the 'Marblehead' class would be driven under ordinary circumstances.

"Water tube boilers have been decided upon for all these cruisers, though the use of this type will add considerably to the expense of the construction and maintenance of the vessels. Roughly estimating, it is safe to say that water tube boilers for vessels of this size will cost at least $20,000 more than Scotch boilers, and experience has shown that repairs are much more costly. As to effectiveness, however, there can be no doubt of the great superiority of the water tube boiler, and it is also true that when repairs are required they can be much more easily and expeditiously made. As these vessels will be largely used for emergency service the capacity of the water tube boiler for raising steam quickly will be a great advantage, which we have taken into consideration.

"Perhaps the most radical change in construction methods to be adopted in these new cruisers will be the sheathing of their hulls. In no steam war vessel built for this Government has this been attempted, but we have ample evidence of the great desirability of this change, and these cruisers will have their steel hulls covered with wood and sheathed with copper. For more than a dozen years I have advocated this method of construction, for our records have shown its importance, and the results of the late war have greatly emphasized the disadvantages of the unsheathed hull. Quoting from a report on the subject, it is shown that the 'Atlanta,' on her trial trip, with a clean bottom, attained the speed of 15.5 knots an hour with 3345 horse-power, while the 'Boston,' her exact duplicate, with a comparatively foul bottom on her trial trip made but 13.8 knots on 3780 horse-power; or, in other words, though the 'Boston's' engine developed 435 horse-power more than the 'Atlanta,' yet her speed was 1.7 knots less. This fouling is much more rapid in the Pacific Ocean and in warm latitudes, and I estimate that in three months the bottom of a modern steel cruiser becomes so foul that she loses at least one-seventh of her speed. Sheathing has been extensively adopted as a remedy for fouling on many of the ships in the English, German, French and Russian navies, and it has been said that if the cruiser 'Charleston,' for instance, with a record of 18 knots, should be sent to Samoa, where for several months she could not be docked, she would become so foul and slow that she could easily be outmaneuvered by the nominally much slower German ship 'Olga,' on whose copper sheathing barnacles and other sea growths could find no footing. It should also be remembered that the steel hulls of vessels are liable to pitting in addition to fouling, and on one occasion an examination of the 'Dolphin' showed that at about the usual load water line a pitted belt, varying from 3 to 18 inches in width, extended from the forward to the after tower. The holes were from 1-16 to 3-16 inch in depth, and as the belts were but 7-16 inch in thickness this became quite a serious matter. With sheathed hulls the new cruisers will be able to stay indefinitely on foreign stations at a distance from docking facilities, which will be a very decided advantage in view of the work cut out for our navy by our recent territorial acquisitions. The sheathing of these vessels would also prove an inestimable advantage for blockade duty. During the recent war the necessity of docking vessels engaged in blockade service was very embarrassing, for ships on such duty must be constantly at their best, as was shown at Santiago, and must be able to hold their positions indefinitely.

"As to batteries, we shall not seek to make the new cruisers more powerful than the 'Marblehead,' and shall give them primary batteries of ten 5 inch guns each. The details of the secondary batteries have not yet been decided upon, but will probably include 3-inch rapid fires, 12-pounders, &c. The old style of poop and forecastle will be abandoned and flush decks will be adopted, which will make the ships much more comfortable, providing more space for quarters and making the vessel easier to handle. Altogether we think these new cruisers will constitute a big advance in marine architecture."

Navy Department officials are much interested in the prospect that other steel manufacturers besides the Carnegie and Bethlehem companies may bid upon the 24,000 tons of armor plate for which the Department recently advertised. The average price for this large amount will be about $350 per ton, making a total of more than $8,000,000. It is stated that several firms have made detailed inquiries at the Department, especially with reference to the encouragement that would be given any competitors of the present manufacturers who might enter the field. Among the firms mentioned as having facilities which might be developed within the contract period to the capacity of producing at least such plates as would be required for the three armored cruisers authorized by Congress are the Midvale Steel Company and the Illinois Steel Company. The Department officials state that the right to use the Krupp process has not been granted exclusively to the Carnegie and Bethlehem companies, but may be acquired by any firm upon the payment of royalties approximating $40 per ton, and might be secured by the Government at the same rate. The Department officials are not developing much anxiety over the outlook either for the manufacture of the armor authorized by law or the construction of the vessels themselves.

"If Congress will adjust this matter by a year from next June," said Chief Hichborn, "no time will be lost in the building and arming of these ships, for the American shipyards and rolling mills are working on orders that will keep them busy for a year, and even if we had authority to make contracts at once it is doubtful whether

it would be expedient to do so in view of the unprecedentedly long time limits we would be required to stipulate in order to get fair prices for the work." W. L. C.

MANUFACTURING.

Iron and Steel.

The Phœnix Steel Wire Company, Limited, Pittsburgh, manufacturers of fine drawn steels, state they have received a large order for 20 tons of black drawn steel rods for bicycle balls, to be furnished to one of the largest manufacturers of balls in the East. This concern state they are very busy manufacturing all high grades of crucible steel, including Phœnix polished drill rods.

The Helen Furnace, formerly known as the Gracey-Woodward Furnace, Clarksville, Tenn., will be blown in by the Red River Iron Company about June 1. The stock will be Stonega, Virginia, coke, Bowling Green limestone and brown ore from Bear Springs, the ore banks on the Clarksville Mineral R. R. and West Point, Tenn. Graham MacFarlane will be president and general manager, H. L. Williams vice-president, M. A. Senter secretary and treasurer.

The Metropolitan Iron & Steel Company of New York City have been incorporated with a capital of $40,000, half paid in, by Stephen J. McArdle, M. A. McArdle, Thomas J. Reilly, A. M. F. Reilly.

The American Pressed Steel Company, with principal office at Camden, N. J., have been incorporated for the manufacture of iron and steel by Mason G. Worth, George W. Marter and W. T. Bailey. The capital is $75,000.

The Duluth Furnace Company, Duluth, Minn., have been incorporated with a capital of $150,000, by John M. Thomas, John G. Williams and Arthur Howell.

The Munising Furnace Company have been organized with a capital stock of $250,000 to build a 125-ton charcoal blast furnace at Munising, Mich. The company will use by-product kilns in the production of charcoal and will manufacture wood alcohol, acetate of lime, &c. Rogers, Brown & Co. are interested, and the directorate consists of Harvey H. Brown, Cleveland, senior partner in the firm of Harvey H. Brown & Co., large dealers and manufacturers in iron and owners of a fleet of steamers; N. B. Bubb, Williamsport, Pa.; R. J. Gaffney, Bradford, Pa., and Thomas Kerry, Hancock, N. Y., all three leading men in the Manhattan Spirits Company, capitalized at $3,000,000; W. H. Hinkle, Ashland, Wis., principal owner in the Ashland Iron & Steel Company; E. H. Scott, La Porte, Ind., president and general manager of the Munising Railway; Robert Morrison, manager of the Munising Railway; H. J. Pierce, Buffalo, N. Y., leading chemical plant man of the American Charcoal Company. The officers, who are selected from these directors, are: President, W. H. Hinkle; vice-president, R. J. Gaffney; treasurer, N. B. Bubb; manager of the chemical department, Thomas Kerry.

The National Stamping & Enameling Company are about to add 18 mills to their sheet plant at Granite City, Ill.

Mary Pratt Furnace of Birmingham, Ala., has been sold to the Williams syndicate of Richmond, Va. The furnace was built in 1882, rebuilt in 1889, but has not been in operation for several years. It is 65 x 14 feet, has three Whitwell stoves and the annual capacity of 300,000 tons.

The Export Iron & Steel Company, Lewis Block, Pittsburgh, recently exported 1000 bundles of hoops to Hong Kong.

The Hyde Park Iron & Steel Company, Hyde Park, Pa., manufacturers of fine grades of iron and steel sheets, are adding one more sheet mill to their equipment.

We have received additional information relating to the Pittsburgh Sheet Mfg. Company of Shousetown, Pa., near Pittsburgh. The capital stock of the company is $75,000, and the officials are R. A. Wilson, president and general manager; Lewis W. Washington, vice-president and secretary, and A. C. Warren, treasurer. These three officials, together with Irwin Marshall and T. L. Woodward, both of Shousetown, Pa., constitute the Board of Directors. The main building is under roof and nearly completed and will be 100 x 250 feet in size. The galvanizing plant is completed and in operation, the concern buying their black sheets in the open market. The black sheet mills will be ready to start one hot and one cold mill by May 15, and by July 1 they expect to have three hot mills in operation. The equipment includes one engine and boiler with a capacity of 1000 horse-power, and one engine for the galvanizing plant of 150 horse-power.

In *The Iron Age* of last week reference was made to the fact that at the Joliet works of the Illinois Steel Company there was turned out in the converting mill in March 50,547 tons of steel, beating the world's record for two-vessel plants by 2000 tons, while the billet mill turned out 42,400 tons, an average of 793 tons for each turn. This great work was surpassed at the Duquesne Steel Works of the Carnegie Steel Company, Limited. The smaller two-vessel plant at Duquesne turned out 53,189 tons of ingots in March, or 2642 tons in excess of the Joliet record. The rolling mill at Duquesne turned out 48,078 tons in March as against 42,400 tons at Joliet. These Duquesne records have never before been equaled in Bessemer practice anywhere in the world.

The Aschman Steel Casting Company, Sharon, Pa., manufacturers of open hearth steel castings, have recently made some important improvements to their plant, including a melting furnace and two 15-ton electric traveling cranes. This concern have spent about $30,000 remodeling their plant.

Keystone Furnace of the Thomas Iron Company, at Hokendauqua, Pa., which was blown out about a year ago, has again resumed blast.

The South Chicago Furnace Company, the new owners of the Calumet Iron & Steel Works, have made an issue of $200,000 in bonds secured on their property, including 56 acres of land, plant and equipment at 106th street and Torrance avenue, Chicago. The bonds run for three years with interest at 5 per cent.

The month of March, 1899, was one of the highest activity that the works of the Pennsylvania Steel Company, Steelton, Pa., have ever experienced. There were 6241 names on the pay rolls on March 31, a gain of 1219 over March, 1898, and for the corresponding month of 1897 a gain of 2437 employees. The product of the month was the heaviest ever made, and the prospects for the current month indicate a still greater output.

The Bethlehem Steel Company of Philadelphia, capitalized at $5000, were chartered by the Pennsylvania State Department on Monday for the manufacture of iron or steel, or both, or of any other metal, or of any article of commerce from metal or wood or both. The incorporators are: Joseph Wharton, Milestown, Pa., 15 shares; Elisha P. Wilbur, South Bethlehem, 15; Robert H. Sayre, South Bethlehem; Robert P. Linderman, South Bethlehem; R. Borie, Philadelphia; E. T. Stotesbury, Germantown, and John Lowber Welsh, Philadelphia, each holding 14 shares of stock. The amount mentioned in the charter is nominal, the real value of the new corporation being about $15,000,000.

At the recent stockholders' meeting of the McCullough Iron Company, at North East, Maryland, the following directors were elected: Henry Whiteley, president; George W. McCullough, Huxley Harvey, M. E. Walker, H. H. Haines, H. Tatnall, Charles E. Foultz.

The Crown Tool Steel Company have been incorporated in New Jersey, with a capital of $150,000, by William L. Rushton, Henry B. Chapman, Eugene B. Fitler and William M. Klink.

The Reading Iron Company, Reading, Pa., blew in on April 10 their Grumwold Furnace at Emaus, Pa. The output will be about 125 tons daily.

Samuel R. Seyfert & Brother, Reading, Pa., will start up their mills at Seyfert Station, on the Wilmington & Northern Railroad in full on Monday, May 1, and will give employment to about 250 hands.

We are officially advised that the report that the Falcon Iron & Nail Company, Niles, Ohio, would build a new sheet mill is untrue. The concern are going to make some improvements, but no new erection is contemplated at this time.

The 10-inch mills of the Warren plant of the National Steel Company at Warren, Ohio, will be started this week after an idleness of some months.

Two deeds transferring the properties of the Union Iron & Steel Company, in Youngstown, Ohio, were filed for record on Friday, April 14, the first being to D. Wiley McCaughtry of Chicago and the second from McCaughtry to the National Steel Company, the consideration in each transaction being specified at $1. Each instrument has attached to it seven $50 revenue stamps. The $350 in stamps would indicate a valuation of $350,000. The property is listed for taxation at $200,000. Its actual valuation is understood to be $1,000,000 in round figures, while something like three times that amount was received for it.

The La Belle Iron Works, Wheeling, W. Va., advise us that they will have in operation this week the two skelp mills at the Jefferson Iron Works, Steubenville, Ohio, which they recently purchased. They will roll about the same sizes as they roll at their present works in Wheeling.

Claire Furnace of the Claire Furnace Company, Limited, at Sharpsville, Pa., has recently made some very creditable records for production. The dimensions of Claire Furnace are as follows: Hight, 75 feet; bosh, 16 feet; hearth, 10 feet; has 13 4-inch tuyeres. Through these they blow 25,000 cubic feet of air per minute, with three blowing engines, one Weimer 64-inch air cylinder and two Mackintosh-Hemphill 72-inch air cylinders. These engines were erected in 1868 and 1870, have four brick stoves 18 x 65 feet, average heat 1125 degrees, normal pressure 10½ pounds. Use 50 per cent. Mesaba ore in mixture. Average yield of ore, 56½ per cent.; coke used per gross ton of iron, 1985 pounds. The output of this furnace last week was 1883 tons. No pig iron was put through the furnace and only the scrap that she made from day to day. The fact that this furnace has not had an off cast since changing onto Bessemer November 20 last may be considered a very satisfactory record.

Machinery.

The Bickford Drill & Tool Company of Cincinnati, Ohio, have been incorporated with a capital of $100,000. The death

of Charles Hoefingoff, the senior member of the firm, made this change necessary, and in the reorganization his son, H. C. Hoefingoff, who has taken charge of the various interests of his father, was elected president and general manager, while L. G. Keck was made secretary and treasurer, and H. M. Norris was elected engineer and works manager. The new corporation begins life with a large amount of business on hand, and in order to take care of its rapidly increasing trade has already installed a considerable number of new tools in its plant, and has also placed orders for quite a number of additional machines, which equipment, together with the changes now under way in the plant, will shortly increase the present output fully one-third.

The Edward P. Allis Company, Milwaukee, Wis., have just received contracts for extensive mining and pumping machinery to be used in the Crimean section of Russia.

The Bay State Machinery Company of Portland, Maine, have been incorporated, with a capital of $110,000, for the manufacture and sale of machinery. The officers are John F. Ross, president; Frank H. Bates, treasurer.

The Centerville Foundry & Machine Company, Centerville, Iowa, have succumbed to financial pressure, and the plant has passed into the possession of Joseph Goss, mortgagee.

Bridges.

The Schultz Bridge & Iron Company of McKee's Rocks, Pa., have the contract for building a bridge over the Illinois River for the Pekin & Peoria Railway Company. The bridge is to cost $125,000.

Two new bridges will be built at South Bend, Ind., across the St. Joseph River, one to be at Sample street and the other at Jefferson street.

The Elmira Bridge Company have the contract from the New York Central to construct the big double track bridge at Hoffmans, N. Y.

A bridge to cost $4,000,000 will be built across the St. Lawrence River near Quebec. American bidders were the lowest, and there is little doubt but what an American company will get the contract.

Three new bridges will be built at Elkton, Ky. One over the Blue Fork of Bond River, J. M. Hearn, commissioner. One on mail route from Sharon Grove to Clifty, Wash Poe, commissioner, and the bridge over Cow Creek, near Kirkmansville, G. J. McGehee, commissioner.

A new railroad bridge will be built across the Kalamazoo River at Plainwell, Mich., by the Detroit Bridge & Iron Works and is to cost $20,000.

Two railroad bridges will be built at Fountain City, Ind., and Geneva, Ind., each to cost about $15,000. The Detroit Bridge & Iron Works have the contract for these bridges.

Sixteen thousand dollars has been appropriated for a new bridge to take the place of the old structure at Sixth street, Des Moines, Ia.

Several bridges will be built across the water power canal at Sault Ste. Marie, Mich., and about $60,000 will have to be raised.

Dispatches received at Connellsville, Pa., state that the Supreme Court has reversed the decision of Judge Kennedy of Pittsburgh, relative to an injunction to prevent the building of an overhead bridge across the Baltimore & Ohio tracks from New Haven to Connellsville by the Youghiogheny Bridge Company. By this decision the injunction is dissolved and the company can proceed with the construction of the new bridge.

City Engineer Monroe of Binghamton, N. Y., has been working on the plans and specification for the Tompkins Street Bridge which the Council ordered him to get ready so that bids can be received for the construction of the bridge.

The plans for the new bridge across the river at Birmingham, Ohio, were submitted by A. W. Judson, engineer, and the commissioners will advertise for bids. Estimated cost of the improvement is somewhat more than $16,000.

The Wisconsin Central Railroad will replace its old bridge across the river at Taylor street, Chicago, Ill.

A new company, to be known as the Grand Rapids Bridge Company, will file articles of association in a few days. The company will be composed of M. J. Reiseger and Frank Gaines of Detroit, Mich., and two Eastern parties. Mr. Reiseger and Mr. Gaines have both had considerable experience in this work. The new company will not only deal in bridges but also in other structures of metal.

Arthur Seaton of Mercer, Pa., has bought the Parks heirs' farm near New Castle, Pa., for the purpose of erecting a bridge building works.

Hardware.

The Wright Shovel Works of Anderson, Ind., are greatly enlarging their rolling mill at Elwood in that State. It is reported that the capacity will be doubled and that the entire business will shortly be concentrated at Elwood.

George Miller and George F. Neuwiller of H. F. Miller & Son, Baltimore, have purchased the plant of Raible, Smith & Co., at Louisville, Ky., from E. A. Mueller, the assignee, for about $25,000. The machinery will be shipped to Baltimore without delay. The plant originally cost $60,000. Raible, Smith & Co. were manufacturers of fancy tinware and were located at Preston and Lampton streets.

Articles incorporating the Imperial Wire, Iron & Roofing Company were filed at Louisville, Ky., last week. The incorporators are James W. and William H. Bates and A. W. Gatz, and the capital is $5000. The company propose to engage in the buying and manufacture of wire, iron, roofing and general supplies.

The Standard Computing Scale Company, with a capital stock of $150,000, are establishing a factory at Detroit, Mich. The officers are Thos. F. Comerford, president; Fred. P. Goettman, treasurer, and Francis C. Osborne, secretary. L. Jachnichen, inventor, is a member of the company.

The Central Spring & Wire Novelty Company have been incorporated at Indianapolis, Ind., with a capital stock of $10,000. The directors are Edward L. Laycock, Thomas M. Richardson and Charles B. Clarke.

Miscellaneous.

A new rolling mill and bolt and nut works is to be established at Scranton, Pa. W. D. Zehnder, who has for 15 years been with the Pennsylvania Bolt & Nut Company, is to be president of the new works. Mr. Zehnder wishes to secure catalogues and prices on machinery. His address is at Lebanon, Pa., until April 25, after which time he will be at Scranton, Pa.

At the annual stockholders' meeting of the American Tube & Iron Company, Middletown, Pa., the following officers were elected for the ensuing year: President, George Matheson; vice-president, S. C. Young; secretary and treasurer, Franklin Mussleman; general manager, A. S. Matheson; superintendent, James H. Matheson.

A meeting of the stockholders of the Standard Underground Cable Company will be held in Pittsburgh on May 1, to vote on a proposition to increase the capital stock of the concern from $1,000,000 to $1,500,000. It is reported that with the increase a 35 per cent. stock dividend will be declared. This will leave a balance of $150,000 stock the proceeds of which will be used to increase the capacity of the plant.

The Burglar Proof Door Lock Company have filed articles of incorporation in St. Louis, Mo. The company have a capital of $50,000, and will manufacture and sell burglar proof door locks. The stockholders are J. F. Sullivan, W. A. Thomas, N. F. Niederlander and A. W. Oliver.

After many years of inactivity the iron ore mines situated three miles south of Hanover, Pa., owned by the E. & A. Brooke Company of Birdsboro, resumed operations last week. Work will also be started at the neighboring mines, owned by F. S. Bechtel.

The Pittsburgh Bridge Company, Pittsburgh, Pa., have been awarded a contract for a steel tower, to be erected in connection with a coal hoisting plant of modern equipment at Spring Valley mine No. 2 of the Spring Valley Coal Mining Company, Spring Valley, Ill. The tower will require 120 tons of steel, will be 70 feet high to the pulley wheels, 22 feet in diameter at the base and about 12 feet at the top. The terms of the contract call for its erection before August 1, and the coal company will install all equipment before September 1. The plant will be operated by steam and gravity and will be equipped with double deck cages, so as to hoist two cars of coal at a time. The plant complete will cost about $75,000.

The Potthoff & Frey Mfg. Company of Cincinnati, Ohio, have been incorporated with a capital stock of $35,000 to manufacture architectural iron and steel, the incorporators being W. F. Potthoff, A. A. Frey, Samuel Newkom, Jr., Charles F. Potthoff and C. Brodenforder.

The Union Switch & Signal Company will close on April 29 the plant of the National Switch & Signal Company at Easton, Pa., which they purchased some time since. The employees of the Easton plant will be given positions with the concern at Pittsburgh.

The Pittsburgh Brake Shoe Company have made application for a charter of incorporation. The incorporators are Frank Moore, P. H. French of the A. French Spring Company, Jno. M. Patterson and Geo. A. Dickson.

The Shenango Machine Company of Sharon, Pa., have given a contract to the Riter-Conley Company of Pittsburgh for the erection of a brick and iron foundry 150 x 100 feet, also two electric traveling cranes. Two new melting furnaces will also be built.

W. C. Cronemeyer of Pittsburgh, formerly of the United States Iron & Tin Plate Mfg. Company, Demmler, Pa., has secured options on three ore properties on Vancouver Island in the vicinity of Port Angeles, Wash., with a view of erecting a tin plate plant near the large canneries in that section. It is claimed that in addition to ore good coking coal can be had. Associated with Mr. Cronemeyer in this new enterprise is Wm. Locke, who was formerly identified with the Demmler plant.

The Wolverine Brass Company have filed articles of association at Grand Rapids, Mich. The company are formed to manufacture plumbers' supplies and the capital stock is $20,000. Louis A. and Harold C. Cornelius each hold one share; Sarah L.

holds 1129, and Edith M. Cornelius 439, and Clara B. Workman 230 shares.

The Union Steel Casting Company, recently organized at Pittsburgh, have made contracts for their power plant with the Westinghouse Machine Company and Westinghouse, Church, Kerr & Co.

The Anderson Knife & Bar Works, manufacturers of machine knives at Anderson, Ind., have added a steam hammer to their equipment and will put in new heating furnaces, considerably increasing their productive capacity.

The Falk Company, Milwaukee, Wis., who control the patent for welding rails and manufacture railroad frogs, switches, joints, &c., will build a new plant in the Menomonee Valley north of the old Falk brewery in that city. There will be three large buildings—two machine shops and one power house. The cost of the entire plant will be about $80,000. The two machine shops will be 100 feet wide by 127 feet long and 40 feet high, while the power house will be 64 x 127 feet in dimensions. The structures will be of steel, cement and brick. A new Corliss engine of 125 horse-power will furnish the power and the most improved system of power transmission—that is, an independent motor for each tool—will be adopted. The company were formed in 1895 and increased their business very greatly from the start, so that now their operations have spread all over the world. The street railway tracks in Paris, France, have been welded by them. The plant at present is at Twenty-third avenue and South Pierce street.

Among recently licensed corporations in Illinois are the G. M. Davis Regulator Company, Chicago; capital $50,000; manufacturing valves; incorporators, George M. Davis, George C. Davis, Richard Thomas.

The work of clearing up a number of the big shops at the United States Arsenal, Rock Island, Ill., with a view to the installation of the small arms factory authorized at the last session of Congress, has begun, and things will be in readiness there for the turning out of the army rifle as soon as possible. The appropriation made by Congress is not available until July 1. Something over a year will probably elapse before the factory is ready for work.

The Chicago & Northwestern Railway Company are about to make large improvements in the shops at West Fortieth street, Chicago. The total outlay will be nearly $300,000, and the work will be completed before the end of the year. An annex 150 x 100 feet will be built on the present erecting shop, and the whole building will be equipped with new tools and used as a general machine shop for making standard parts. A gallery will be built around the erecting shop, increasing the floor space for machine work by 23,500 square feet. A boiler shop of modern design will be built, 300 x 120 feet, which will be served by an overhead electric crane of 60 tons and an auxiliary crane of 10 tons capacity. The present tank shop, which is 80 feet wide, will be extended 140 feet, and the roof will be raised five feet to give sufficient clearance for an overhead electric crane. A large central power house, with two generators and engines and boilers, will also be built. All the shops will be equipped so as to be electrically driven. The general plan will probably be to drive groups of light machines by belts and short shafts, which in turn are driven by motors, while separate motors will be put on the heavy machines.

Dilworth, Porter & Co. of Pittsburgh, manufacturers of railroad, street railway and boat spikes, have given their employees an advance in wages of 10 per cent.

The Finished Steel Company, Youngstown, Ohio, manufacturers of polished shafting and special shapes, have plenty of business and are obliged to work overtime to get out material as fast as needed. This concern will shortly put on the market a "Star" specialty for which they anticipate a very large demand.

The Youngstown Iron & Steel Roofing Company, Youngstown, Ohio, manufacturers of iron roofing and siding of all kinds, T and C sheet metal lath, Youngstown corrugated expanded lath, Buckeye metal trough bridge flooring and Buckeye fire proof flooring, are very busy in all of these products and expect the year 1899 to eclipse all previous years with them since they have been in business.

The Continental Coke Company, who recently purchased the Revere tract of 1250 acres of coal land from H. C. Frick in Southern Fayette County, Pa., intend to commence work in the near future upon the large coke plant to be erected in that territory. As before noted in these columns, the Continental Coke Company are an identified interest of the National Steel Company.

The Fulton Iron Works, St. Louis, Mo., are building for the Lindell Railway, St. Louis, two pairs of cross compound condensing Corliss engines, 32 x 62 x 60. These are to be direct connected to generators furnished the railway company by the Westinghouse Electric & Mfg. Company. They are also making, for foreign shipment, one tandem compound Corliss engine, 22 x 34 x 48, and one Corliss engine, 22 x 48.

The Jewell Belting Company of Hartford, Conn., have completed ready for shipment two leather belts which were ordered by a firm in a leading city of France. The belts are ½ inch in thickness, 5 feet in width, and together are 225½ feet long. They weigh over 2400 pounds, and will be used in the power plant of an electric street railway.

F. R. Phillips' Sons Company, builders of tin plate plants, rolling mills and tin plate machinery, have removed their offices from 925 Chestnut street to 18 South Broad street, Philadelphia.

The Michigan Detachable Chain Company of Detroit, Mich., with a capital stock of $50,000, have filed articles of incorporation with the Secretary of State.

Pressed Steel Car Company Listed.

At the meeting of the Governing Committee of the New York Stock Exchange held last Thursday, the stocks of the Pressed Steel Car Company were regularly listed. There were listed $12,500,000 of non-cumulative preferred stock and $12,500,000 of common stock.

The company were incorporated on January 12, 1899. By their articles of incorporation they are authorized (among other things) to engage in "the manufacturing of railway cars, passenger, freight and street cars; the manufacturing of pressed steel trucks, and other trucks; the manufacturing of bolsters, truck frames, center plates, stake pockets, corner bands, steel equipments and appliances and specialties for railways, cars, and all the products of steel, iron steel or other metals and wood; to manufacture, purchase or otherwise acquire, to hold, mortgage, pledge, sell, assign, and transfer or otherwise dispose of, to invest, trade, deal in and deal with the products, materials, goods, wares and merchandise and property of every class and description." This company were formed for the purpose of combining in one company the interests of the Schoen Pressed Steel Company and the Fox Pressed Steel Equipment Company, controlling practically all the pressed steel car business in this country. The Fox Pressed Steel Equipment Company are a company created by the merger of the Fox Solid Pressed Steel Company and the Fox Pressed Steel Company. The Fox Solid Pressed Steel Company began operations on October 17, 1888, and continued in active business until April 17, 1897, when they consolidated with the Fox Pressed Steel Company. The Fox Pressed Steel Company were organized February 8, 1896, and with the Fox Solid Pressed Steel Company merged themselves into the Fox Pressed Steel Equipment Company. The Schoen Pressed Steel Company were incorporated November 25, 1895. They have been in active operation until the formation of this company.

The plants are three, all of which are now in active operation, namely: Woods Run at Allegheny, Pa., consisting of 18 acres, of which seven acres are covered with new steel buildings of the most improved modern design, and with machinery and equipment specially designed, most of which is covered by basic patents. McCandless Avenue plant, at Pittsburgh, Pa. It has three acres of ground covered with steel and stone buildings of improved type. The plant is completely equipped with machinery, protected to a large extent by patents, which it is believed are basic. Joliet plant, at Joliet, Ill. It has two and one-half acres of ground covered with improved, well constructed buildings of brick and steel. The plant is completely equipped with machinery, largely covered by patents which are believed to be fundamental.

The combination of the Fox Company and the Schoen Company resulted in the elimination of vexatious and costly suits between the two companies as to patents and patent rights, and removed all question of title or priority as to the 158 letters patent which they hold, so that as between the companies there can be no further question as to patents and patent rights.

The company have, as will be seen from the annexed statement of assets and liabilities, $1,500,000 working capital, and have earned profits to this date amounting to the sum of $440,907.29.

The officers of the company are: Charles T. Schoen, president; E. N. Dickerson, vice-president and treasurer; W. H. Schoen, second vice-president; W. O. Jacquette, assistant treasurer; W. C. DeArmond, secretary.

Directors: Charles T. Schoen, E. N. Dickerson, H. W. Oliver, Charles L. Freer, Edwin Hawley, Adrian H. Larkin, W. H. Schoen.

Approximate Balance Sheet, February 28, 1899.

ASSETS.

Plants	$22,650,000.00
Cash in hand	1,618,540.95
Accounts receivable	1,000,555.73
Approximate value of materials on hand at works, as per works' ledger balances	900,000.00
Total	$26,169,096.68

LIABILITIES.

Capital stock	$25,000,000.00
Current accounts payable	728,189.39
Balance, being approximate profit for first two months of current fiscal year	440,907.29
Total	$26,169,096.68

The Iron and Metal Trades.

A Comparison of Prices

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type. Declines in Italics.

	Apr. 19, 1899.	Apr 12, 1899.	Mch. 22, 1899.	Apr. 20, 1898.
PIG IRON:				
Foundry Pig, No. 2, Standard, Philadelphia	**$15.75**	$15.75	$15 50	$10.80
Foundry Pig, No. 2, Southern, Cincinnati	**14.50**	14.50	14 25	9.00
Foundry Pig, No. 2, Local, Chicago	15.00	15.00	15 00	11.00
Bessemer Pig, Pittsburgh	*15.00*	15 00	15.15	10.40
Gray Forge, Pittsburgh	**14 50**	14 50	14.25	9.25
Lake Superior Charcoal, Chicago	17.00	17.00	17.00	11 50
BILLETS, RAILS, ETC.:				
Steel Billets, Pittsburgh	25.50	25.50	25 50	15.00
Steel Billets, Philadelphia	**27.50**	27.50	26.00	17.00
Steel Billets, Chicago	25.50	25 50	25.50	17.00
Wire Rods, Pittsburgh	.....	.....	31.50	21.00
Steel Rails, Heavy, Eastern Mill	26 00	26.00	26 00	18 00
Spikes, Tidewater	1.70	1.70	1.70	1.40
Splice Bars, Tidewater	1.40	1.30	1 40	1.05
OLD MATERIAL:				
O. Steel Rails, Chicago	**11.50**	11.75	11.25	8.00
O. Steel Rails, Philadelphia	**15.00**	15.00	14.25	10 25
O. Iron Rails, Chicago	18 00	18.00	18.00	12.00
O. Iron Rails, Philadelphia	**18.00**	18.00	17.00	12.50
O. Car Wheels, Chicago	15 00	15.00	15.00	11.50
O. Car Wheels, Philadelphia	15.00	15.00	15.00	10.25
Heavy Steel Scrap, Chicago	*10.50*	12.00	11.25	8.00
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	1.50	1.50	1.50	1.05
Common Iron Bars, Youngstown	**1.50**	1.50	1.40	0.95
Steel Bars, Tidewater	**1.75**	1.50	1.50	1.10
Steel Bars, Pittsburgh	**1.60**	1.50	1 45	0.95
Tank Plates, Tidewater	**2.25**	2.15	2.00	1.10
Tank Plates, Pittsburgh	**2.10**	2.00	1.85	1.00
Beams, Tidewater	**1.65**	1.65	1.55	1.30
Beams, Pittsburgh	**1.50**	1 50	1.40	1.15
Angles, Tidewater	**1.75**	1.60	1.45	1.15
Angles, Pittsburgh	**1.50**	1.50	1.40	1.05
Skelp, Grooved Iron, Pittsburgh	**1.65**	1 60	1.50	1.05
Skelp, Sheared Iron, Pittsburgh	**1.90**	1.90	1.70	1.10
Sheets, No. 27, Chicago	**2.90**	2.70	2.45	2.05
Sheets, No. 27, Pittsburgh	**2.50**	2.50	2.40	1.95
Barb Wire, Galv., f.o.b. Pittsburgh	**2.70**	2.50	2.50	1.85
Wire Nails, f.o.b. Pittsburgh	**2.10**	2.00	2.00	1.30
Cut Nails, Mill	**1.65**	1.75	1.50	1.10
METALS:				
Copper, New York	**18.50**	18 50	17.00	12.12½
Spelter, St. Louis	**6.30**	6.50	6 05	4.00
Lead, New York	*4.33½*	4.27½	4.45	3.55
Lead, St. Louis	*4.17½*	4.12½	4.27	3.40
Tin, New York	**25.12½**	24 50	23.65	14.35
Antimony, Hallett, New York	10.00	10.00	10.00	8.00
Nickel, New York	38.00	38.00	38.00	34.00
Tin Plate, Domestic, Bessemer, 100 lbs., New York	*4.05*	4.05	4.10	2.90

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, April 19, 1899.

(By Telegraph.)

Pig Iron.—The Bessemer Pig Iron market is referred to by the furnaces as being in most satisfactory condition. While it is true there is very little Iron selling, yet there is not much to spare for delivery this side of July, and the furnaces are running on contracts already entered. The statement showing the wonderful decrease in stocks last month has had the effect of adding further strength to the market. While no sales have been made by the furnaces for some time, the nominal price of Bessemer Pig is $14.50, Valley, but a few small lots ranging from 100 tons to 400 or 500 tons have been sold on the basis of $15, Pittsburgh, or $14.35, Valley. There has been a good deal of Gray Forge sold in the past week, some of it for delivery in second half. Prices are very strong on the basis of $13.85, Valley, equal to $14.50, Pittsburgh. Foundry Irons are fairly active, but the tone of the market is easier and prices slightly lower. We quote Bessemer Pig at $14.50; Gray Forge, $13.85, both at Valley furnace. No. 2 Foundry, $15 to $15.25; Gray Forge, $14.50; Bessemer, $15 to $15.15, all f.o.b., Pittsburgh. We note a sale of 100 tons of Bessemer at $14.50, Valley; 1000 tons for last half at $14.50, Valley, and 300 tons for early shipment at $15, Pittsburgh. We also note sales aggregating 5000 to 6000 tons of Gray Forge for delivery in second half of the year at $14.50, Pittsburgh. We also note the fact that a good deal of Southern Forge has come into the Pittsburgh market in the past two or three weeks. We can note sales of about 3000 tons of Southern Forge on the basis of $14, Pittsburgh.

Steel.—The Steel market is quiet but very strong. We can note a sale of 1000 tons of Slabs for Eastern shipment at $26, Pittsburgh. Also a sale of 100 tons of No. 20 Carbon Steel at $26.50, maker's mill. The Bessemer Steel business of the United States is controlled by four concerns, American Steel & Wire Company, National Steel Company, Carnegie Steel Company and Federal Steel Company. These four concerns are working very closely together, and evidently have an understanding as to prices and territory. With the Steel business thus under complete control, it is believed that prices for last half will be kept very close to where they are now—that is, about $25, Pittsburgh, for Billets.

Sheet Bars.—The market for Sheet Bars is about $26, Pittsburgh. A sale of 300 tons for early shipment is reported at $26.50, made by a dealer.

Muck Bar.—There has been nothing done for several days. The market is about $25.75, Pittsburgh, for best grades.

(By Mail.)

New business has fallen off considerably, but there are no indications of a break in prices anywhere along the line. The lull in demand is rather welcomed by the manufacturers, as it will give them a chance to catch up on deliveries, which in many cases are two or three months behind. The falling off in demand is probably due to the fact that buyers who are covered up to July are willing to take chances on second half of the year. On the other hand there is no disposition on the part of the mills to go in and make lower prices to get tonnage for second half. There have been sales of Finished Material for third and fourth quarters at prices about as high as ruling at present, but in some cases a concession has been made for long delivery. It is probable that if buyers were disposed to go in and cover for last half at present prices they would be able to do so very readily, as the mills realize that if they can sell their output for second half at present prices they would have enormous profits, and would be perfectly willing to do so. Opinion as to the future is divided. Some predict that the top has been reached and a decline will come, while others, just as conservative and well informed, believe that still higher prices for second half are certain. Since our last report the American Steel & Wire Company have advanced Nails and Wire from $3 to $4 a ton. On all other lines prices have been practically stationary.

Plates.—Demand is good, but is not quite as active as it was three or four weeks ago. Buyers are evidently willing to take chances on higher prices, and are placing orders only as necessity demands. Prices continue very strong, and Tank for immediate shipment is reported to have sold at 2.25c. at mill. We have advanced quotations and now quote: Tank Plate, ¼-inch and heavier, 2.10c. to 2.25c., depending on delivery; Shell, 2.15c. to 2.25c.; Flange, 2.30c. to 2.40c.; Marine, 2.50c. to 2.60c.; Fire Box, 2½c. to 3¼c., depending on quality.

Structural Material.—The volume of business is heavy, and both local mills are running to full capacity. A large quantity of bridge work, involving some 8000 to 10,000 tons, has been placed since our last report. It is estimated that some large building projects have gone over for the time being on account of the heavy advances in prices of Structural Material, which on some lines have almost doubled within the past three or four months. We quote Beams and Channels, 3-inch to 15-inch, 1.50c.; Angles, 1.50c.; Zees, 1.50c.; 18, 20 and 24-inch Beams, 1.60c.; Universal and Sheared Plates, 2.10c.

Ferromanganese.—The local producer continues to quote Ferro at $75 in large lots. Small lots for spot shipment are reported to have sold up to $80 and $85.

Sheets.—The Sheet market remains in practically the same condition noted in this report last week. Demand is not quite as active as it has been, and among some of the mills there is more disposition to enter business and at slightly lower prices. However, the general tone of the market is strong, and high prices are being obtained. We quote No. 27 Black Sheets, Smooth Finish, at 2.50c. to 2.60c.; No. 28, 2.60c. to 2.65c., depending on order and deliveries wanted. We quote Galvanized Sheets at 75 per cent. off, with 15c. freight allowance, in large lots. For small lots 70 and 10 to 70 and 5 per cent. is being quoted.

Bars.—It is reported, but not confirmed, that a hitch has occurred in the formation of the Republic Iron & Steel Company, repeatedly referred to in these columns. It is not of a very serious nature and will be overcome. In the meantime many of the mills going into the consolidation are not quoting, while other concerns are sell-

ing only enough Bars to take care of their customers. The trade are disposed to buy sparingly until the policy of the new company has been defined. We quote Iron Bars at 1.50c. to 1.55c., at Valley mill, half extras. In Steel Bars there is a large volume of business and the mills are filled up, some of them with all the tonnage they can turn out for the next three or four months. The minimum price of Steel Bars is 1.60c. at mill, Pittsburgh, with half extras, while for small lots and immediate shipment as high as 1.75c, has been done.

Iron and Steel Skelp.—It is difficult to quote the Skelp market, prices depending altogether on the order and deliveries wanted by the customer. Grooved Steel Skelp in wide sizes has sold up to 1.75c. at maker's mill. The La Belle Iron Works, at Wheeling, will start the two Skelp mills at Steubenville, which they recently bought, some time this week. They will roll from 6⅞ up to 16 inches wide. All the Skelp mills are full of work, some of them being practically sold up for three or four months. We quote Grooved Steel Skelp at 1.65c. to 1.70c.; Sheared Steel Skelp, 2c. to 2.10c.; Grooved Iron Skelp, 1.65c. to 1.70c.; Sheared Iron Skelp, 1.90c. to 2c., all f.o.b. Pittsburgh, four months, or 2 per cent. off for cash 30 days. In connection with these quotations it should be noted that where a mill is in position to make immediate delivery higher prices than we quote are often obtained.

Pipes and Tubes.—Among contracts recently placed was one of 40 miles of 10-inch Pipe for the Columbus Gas Company, taken by a local mill. It is understood that good progress is being made on the consolidation of the Pipe mills, and it is expected to be effected within the next 60 days. Appraisers and auditors have about concluded their work. Investigations were very thorough, running back in most cases ten years. Demand for Pipe continues active and prices are very strong. We quote Merchant Pipe at 60 off, with four 10's for small lots, and an extra 5 per cent. in carload lots, delivered. One or two mills are reported as naming slightly lower prices. We quote Screw and Socket Joint Casing at 52½ per cent.; Inserted Joint, at 47½ per cent., with an extra 5 per cent. to dealers. There is a heavy demand for Boiler Tubes and prices are strong. We quote: 1¼ and 1½ inch, Iron or Steel, at 45 per cent. off list; 1¾ to 2½ inch, inclusive, Iron, 55 per cent.; Steel, 60 per cent.; 2¾-inch and larger, Iron, 60 per cent.; Steel, 62½ per cent., with an optional 5 per cent. to dealers.

Connellsville Coke.—There is a very heavy demand for Coke, and in some cases deliveries have not been as prompt as desired. Last week there were 16,394 ovens active, and only 2259 idle, the production being 173,804 tons, a decrease of about 6000 tons over the previous week. We quote strictly Connellsville Furnace Coke at $1.75, and Foundry Coke at $2.15 to dealers and $2.30 to consumers. Some brands of Coke, not so favorably known, are being sold at slightly lower prices.

The general offices of the American Steel Hoop Company, who took over their various properties on Monday, April 17, will be located on the fourth and fifth floors of the First National Bank Building, Wood street and Fifth avenue, Pittsburgh, occupying the rooms recently vacated by the Western Union Telegraph Company. The officers of the company are: Charles S. Guthrie, president; Charles Painter, first vice-president; F. S. Wheeler, treasurer; Frank L. Clark, secretary. The American Steel Hoop Company are closely affiliated with the National Steel Company, the latter concern controlling a majority of the stock.

Chicago *(By Telegraph.)*

Office of *The Iron Age*, 805 Fisher Building,
CHICAGO, April 19, 1899.

While pronounced scarcity exists in some lines and no effort to push sales is observed in any direction, the market is rather narrow. Large consumers seem to have covered their wants for the time being or have decided to await developments in the hope of lower prices. Heavy transactions, which were a feature of the recent past, have ceased, and less pressure is felt for deliveries except in a comparatively few branches. The general condition is one of strength and the consumption of Iron and Steel is so large that a slight break in the production is immediately felt. Nevertheless in such commodities as are distributed through middlemen stocks are believed to be large and the consumption will have to be sustained at high water mark to prevent some irregularity in prices a little later in the season.

Pig Iron.—The transactions of the week have aggregated a considerable quantity, including a few orders running as high as 2000 tons. Most of the current business, however, is for as quick shipment as can be made. One of the local furnaces has been blown out for repairs, and immediately a pressure was felt from some consumers for Iron to take the place of deliveries for which they had contracted from that source. Any interruption of this character immediately causes a decided inquiry for more Iron. It is reported that about 50,000 tons of warrant Iron in Southern storage yards have been purchased by a large Pig Iron house with branches in various cities, for the purpose of meeting the demand for spot Iron. This cuts down the available stocks of Iron very considerably. The Pig Iron trade are looking for a heavy demand in the near future from Malleable foundries, car works, agricultural implement makers, and other large consumers. Higher prices are freely predicted. The Charcoal Iron makers report their product sold far ahead. We quote for cash as follows:

Lake Superior Charcoal	$17.00 to $18.00
Local Coke Foundry, No. 1	15.50 to 16.00
Local Coke Foundry, No. 2	15.00 to 15.50
Local Coke Foundry, No. 3	14.50 to 15.00
Local Scotch, No. 1	16.00 to 16.50
Ohio Strong Softeners, No. 1	17.00 to 18.00
Southern Silvery	16.00 to 16.25
Southern Coke, No. 1	16.00 to 16.25
Southern Coke, No. 2	15.50 to 15.75
Southern Coke, No. 3	15.00 to 15.25
Southern Coke, No. 1 Soft	15.75 to 16.00
Southern Coke, No. 2 Soft	15.00 to 15.25
Foundry Forge	14.50 to 14.75
Gray Forge and Mottled	14.50 to 14.75
Southern Charcoal Softeners	16.00 to 16.50
Alabama and Georgia Car Wheel	18.00 to 19.00
Malleable Bessemer	..... to 16.00
Standard Bessemer	..... to 16.00
Spiegel, 20 per cent.	..... to 30.00
Jackson County Silvery, according to Silicon	18.00 to 19.00

Bars.—Considerable business has taken place in Bar Iron, but it would have been much greater if mills could have been found willing to accept orders. Only a few of the mills are in a position to take orders, and these have been able to get from 1.60c. to 1.75c., Chicago, according to the promptness with which they could promise delivery. The car builders and other large consumers need a great deal of Iron and hope that the consolidation will soon be in shape to take orders to relieve the situation. The demand for Soft Steel Bars has been excellent, and good contracts have been entered at 1.65c. to 1.80c., Chicago, according to time of delivery. Notices are out that the American Steel Hoop Company have acquired the plants of the several Hoop mills for which they negotiated, and it is assertd that orders can be placed with them at 1.90c., base, on Bands, Chicago delivery. Jobbers report an extremely heavy trade and quote small lots from stock at 1.70c. upward for Iron or Steel, and 3.20c. to 3.25c. for Norway and Swedish Iron.

Car Material.—Good orders have been placed for Angles and Channels by car builders, who are in the market for considerable additional quantities of various kinds of material.

Structural Material.—Business has been fair, especially in bridge work. One order of this character called for 2000 tons. The Alton Railroad will shortly place contracts for new bridges exceeding 5000 tons. Structural Material for buildings is in good demand in small quantities. Mill shipments are quoted as follows, Chicago delivery: Beams, 18 inches and over, also Angles under 3 and over 6 inches, 1.75c. to 1.85c.; Beams and Channels, 15 inches and under, and Angles 3 to 6 inches, 1.65c. to 1.75c.; Tees, 1.70c. to 1.80c.; Universal Plates, 2.15c. to 2.25c. Store prices are from ¼c. to ½c. above these prices.

Plates.—Mill agents are in receipt of large inquiries, but the mills are refusing to take more than small orders, and ask higher prices than ever for early shipment. The local mills could easily sell their output for the remainder of the year if they desired. They prefer, however, to take care of their regular trade. Jobbers report some slackening in the demand from stock, showing that consumers are not disposed to pay store prices for large quantities. The mills able to make shipment within four or five weeks are now quoting 2.25c., Chicago, for Tank Steel; 2.35c. for Flange, and 2.60c. for Marine. Quotations are continued at 3c. on Common Fire Box, and 3.50c. to 4.50c. on Best Fire Box.

Merchant Pipe.—Business is being offered which cannot be accepted by the mills. The demand seems to be much beyond the supply. Carload lots of Merchant Pipe continue to be quoted at four 10's and 5 off. Merchant Boiler Tubes are quoted in small lots 1¼ to 1¾ inch, inclusive, 40 per cent. off for Iron and 45 per cent. off for Steel; 2 to 2¾ inch, inclusive, 52½ per cent. off for Iron and 57½ per cent. off for Steel; 3-inch and larger, 60 per cent. off for Iron and 62½ per cent. off for Steel, with an extra of 5 per cent. for carload lots.

Sheets.—Sales agents quote 2.85c. to 2.90c., Chicago, for mill shipments No. 27 Black, but very little is available for shipment before July 1. A great deal of trouble

is found in getting orders accepted on special sizes, as manufacturers are too well supplied with work. The manufacturers of Galvanized Sheets are a little easier in their rates, and are resuming the 15c. freight allowance on mill shipments, continuing to quote 75 per cent. off. Jobbers are holding small lots of No. 27 Black at 2.90c., and Galvanized Sheets at 70 and 10 per cent. off. Manufacturers have withdrawn quotations on Wood's Smooth, and jobbers will shortly be obliged to advance their rates on that brand.

Merchant Steel.—The demand is confined to small lots, but the trade of this character is fully as great as the mills can handle at present. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 2.40c. to 2.50c.; Smooth Finished Tire, 2.20c. to 2.30c.; Open Hearth Spring Steel, 2.40c. to 2.50c.; base; Toe Calk, 2.40c. to 2.50c., base.; Ordinary Tool Steel, 5.50c. to 7c.; Specials, 10c. upward. Jobbers are quoting small lots from stock at 2.70c. for Tire, 2.90c. for Machinery, 2.90c. for Spring, and 2.90c. for Toe Calk, full extras.

Billets and Rods.—Nominal quotations on Billets are continued at $25 to $26. Sales of small lots of Wire Rods have been made by Eastern parties at $36, delivered in this vicinity, but it is possible that for deferred shipment $34 might be made.

Rails and Track Supplies.—Sales of small lots of Standard Sections of Steel Rails are reported, prices being continued at $26 to $28, according to quantity. The manufacturers are in receipt of good inquiries, but are unable to make the desired delivery. Quotations on Light Rails are nominal at $25 to $28, as the mills are sold so far ahead that they cannot meet the views of buyers. Track supplies are quoted as follows: Splice Bars, 1.40c. to 1.50c.; Spikes, 2.15c. to 2.20c.; Track Bolts, with Hexagon Nuts, 2.60c. to 2.70c.; Square Nuts, 2.40c. to 2.50c.; Steel Links and Pins, 2c.; Iron Links and Pins, 1.80c. to 1.85c.

Old Material.—Sales of Old Iron Rails have been made in moderate quantities at $18 to $18.50, Chicago, and $19, East St. Louis. Some business is doing in other classes of Old Material, but the movement is not large. The supply of Cast Scrap is steadily becoming larger with better weather, and prices are easy. Dealers' selling quotations are as follows, per gross ton: Old Iron Rails, $18 to $18.50; Old Steel Rails, mixed lengths, $11.50; Selected Long Lengths, $13 to $13.50; Relaying Rails, $19 to $20; Old Car Wheels, $15; Heavy Melting Steel Scrap, $10 to $10.50; Mixed Steel, $8.50. The following selling prices are per net ton: No. 1 Railroad Wrought, $16 to $16.50; Dealers' Forge, $12.50; Fish Plates, $15; No. 1 Mill, $9 to $10; Heavy Cast, $12 to $12.25; Stove Plates, $7.50 to $8; Iron Car Axles, $16.50; Horseshoes, $11.50; Cast Borings, $5.50 to $6; Steel Axle Turnings, $8.50; Iron Axle Turnings, $9; Machine Shop Turnings, $6.50 to $7.

Metals.—Copper is higher, carload lots of Lake being now quoted at 19.50c., and Western Copper at 17.87½c. Lake Copper is very scarce, and probably will continue so until June. More than the usual difference is seen between the price of Lake and Western, but it is the general impression that the latter will soon be marked up considerably on account of the demand. Spelter is strong, being quoted at 6.30c. A better demand is noted for Pig Lead, and it is now quoted at 4.20c. The refiners are well sold up, and the new smelting consolidation being in control of the situation, it is expected that the market will be higher.

Tin Plate.—An improved demand is noted for Bright Plates. The general consumption is increasing and orders are coming in more freely to jobbers. A little irregularity is noted in the prices of Roofing Plates in some portions of the West, owing to the efforts of local jobbers to dispose of their stocks.

The Red River Iron Company have been incorporated, with headquarters at Clarksville, Tenn., to operate the furnace known as the Gracey-Woodward, having a daily capacity of 175 tons. The fuel used will be Coke from Virginia, and the supply of Ore will be Brown Hematite, partly from Northern Alabama and Tennessee and partly from the same locality in Tennessee that has furnished the famous cold blast Charcoal furnaces of that State for the past 60 years. The furnace will be in blast by July 1 or earlier. Graham MacFarlane and H. L. Williams have been the prime movers in the organization of the company. Mr. MacFarlane will take active charge of the operations of the furnace as president and general manager, residing at Clarksville. The sales agents for the product are Hickman, Williams & Co., The Rookery, Chicago.

Philadelphia.

Office of *The Iron Age*, Forrest Building, PHILADELPHIA, PA., April 18, 1899.

The market has been a little quiet compared with the excitement which prevailed some weeks ago. There is no loss of firmness, however, although prices appear to be settling on a solid foundation, without any appreciable recession from the highest figures yet reached. This should be a most encouraging feature to both buyer and seller. There is a good margin of profit, and there is about all the business that can be handled, so that it is extremely desirable to avoid fluctuations which might disarrange matters very seriously. Of course, prices cannot be made subject "to anybody's say so," and if there should be increased scarcity of material prices would go up anyhow, just as they would go down if there was an oversupply, but at this particular time there appears to be a very fair chance for a steady market at figures now ruling, or something very close thereto. There is too much demand and too small stocks to permit of a decline, and prospects for increased production are too strong to warrant much advance. After a while the situation may develop new features and permit some readjustment of ideas, but in the meanwhile the best interests of the trade will be served by such conservative movements as may be indicated from day to day. At this writing the outlook is particularly good. Buyers and sellers appear to be equally well satisfied, the former being as doubtful in asking for lower prices as sellers are in asking for any advance, a condition of affairs which occurs only about once in a lifetime. There will be an end to this sooner or later, but it is to be hoped that it will develop naturally, and not be forced prematurely.

Pig Iron.—The demand is only fair, but stocks are so light that makers have no trouble in securing full prices. More interest is manifested in long deliveries, and prices for such are a trifle easier, as quite a number of furnaces that are just starting in are offering metal at a slight reduction, and as they have no old contracts at low prices they are in a better position than others who are trying to make an average. The market is not weak, however, and, considering the advances made during the past three or four months, it is surprising how little expectation there is of any serious reaction; but the outlook is favorable for a large consumption, and as stocks are at such an extremely low point the chances for an unfavorable turn in the market appear to be extremely remote. Consumers are not as wildly bullish as they were, however, but of course there is a difference between to-day's prices and those of three or four months ago, and while requirements may be just as large in the aggregate, buying may be of a more hand to mouth character than it has been for some time past. For the present, therefore, the situation appears to be favorable to the selling interests and prices are steady at about the following figures for seaboard or equivalent points: No. 1 X Foundry, $16.50 to $17; No. 2 X Foundry, $15.75 to $16.25; Plain, $15.25 to $15.50; Standard Mill Iron, $15 to $15.25; Basic, $15 to $15.25; Low Phosphorus, $19.50 to $20, according to points of delivery.

Billets.—There is nothing doing of any account, although there is some inquiry for Nail Slabs. Sellers quote $27.75 to $28, and a few small lots have been taken, but large buyers hold off in the hope of doing something better, which at present, however, has not been found practicable.

Plates.—The situation is much the same as it has been for several weeks past, and judging from present appearances it is likely to remain so indefinitely. There is all the business that can be handled, and more than can be handled for early deliveries, although prices remain at top notch, and are no doubt very satisfactory to manufacturers. There is also a good demand for deliveries extending over the last half of the year, but sellers require full prices, as the increase in cost is important, so that there is no great desire to load up very heavily, notwithstanding the higher selling prices. There has been no advance during the past couple of weeks, however, and without being weaker the market has a somewhat quiet look compared with last month. Prices for seaboard or equivalent points are usually quoted as follows: 2.20c. to 2.30c. for ¼-inch and thicker; Shell, 2.35c. to 2.40c.; Flange, 2.50c.; Fire Box, 2.60c.

Structural Material.—There is a great deal of work coming in from all the various consuming interests, so that the mills are in a chronic condition of activity. It is difficult to secure deliveries of large lots this side of midsummer, and much of the business taken for earlier dates is at better than combination prices, which are as follows for seaboard deliveries: Angles, 1.63c.; Beams, 15-inch, 1.63c.; Tees, 1.68c.; Zee Bars, 1.67c.; Bulb and Deck Beams, 1.83c.

Bars.—The market is quiet compared with last month's activity, but there is still a very good demand, which, combined with large orders previously entered, keeps the mills running to their full capacity. Prices are unchanged as follows for seaboard or equivalent points of delivery: Ordinary Bars, 1.40c. to 1.45c.; Refined Bars, 1.50c. to 1.55c.; Test Bars, 1.65c.; Steel Bars, 1.70c. to 1.75c.

Sheets.—Mills are very busy in all departments and have excellent prospects for summer work. Thin Sheets, which were comparatively dull, are now called for with greater urgency, so that prices are firm along the entire line. Sales at about the following figures for best makes (Common Sheets two-tenths less): No. 10, 2.60c.; No. 14, 2.70c.; No. 16, 2.80c.; Nos. 18-20, 2.90c.; Nos. 21-24, 3c.; Nos. 26, 27, 3.10c.; No. 28, 3.20c.

Old Material.—The market is irregular, and on the whole not as strong as it was a week ago, although choice material which may happen to be wanted for some particular purpose still brings full prices. Buyers are not as numerous as they were, however, and in case of pressure to realize concessions would have to be made. Bids and offers for deliveries in buyers' yards are about as follows: Cast Borings, $10 to $10.25; Wrought Turnings, $11 to $11.25; Machinery Cast, $13 to $13.50; Old Car Wheels, $15 to $15.50; Heavy Steel Scrap, $14 to $15; Steel Rails, $15 to $15.50; Iron Rails, $18 to $19; No. 1 Railway Scrap, $17.50 to $18.50; Iron Axles, $21 to $22; Steel Axles, $16.50 to $17.50.

Cleveland.

CLEVELAND, OHIO, April 18, 1899.

Iron Ore.—The prediction made in this correspondence to *The Iron Age* last week to the effect that some united action on the part of vessel owners engaged in the Ore carrying trade with reference to the securing of remedial measures in the matter of the abuse of rebates in the handling of Ore might be expected in the near future received verification even sooner than expected. The whole subject was made the subject of a very animated discussion at a meeting of the executive officers and committees of the Lake Carriers' Association held in Cleveland last week. The meeting of the association, which includes in its membership all the principal vessel owners on the great lakes, was called primarily for the purpose of considering the prevailing unsatisfactory condition of things with reference to the loading and unloading of grain, but the protest of Capt. James Davidson of West Bay City, Mich., a well-known vessel builder and owner, against the advance of 2c. per ton in the unloading charges for Ore opened up the whole subject. Captain Davidson brought the matter up by moving that a committee be appointed to confer with the dock owners with a view to, if possible, inducing them to reconsider their action. He intimated that no little blame attached to the action of the Ore interests in first inducing the independent vessel owners to accept a low rate on Ore carrying contracts—60c. from ports at the head of Lake Superior—and then advancing the charge for unloading the Ore. Coupled with this criticism, of course, was the insinuation that the docks are controlled by the Ore shippers. He claimed that the charge of 16c. was an unjust one at best, and that in no other branch of the lake carrying trade is the vessel compelled to pay for the handling of cargo after it has left the rail of the boat. His contention was that the vesselmen should pay for the shoveling of Ore, but that at that point the expense to them should cease. This would make the charge to the vessel at Cleveland, for instance, 11c. a ton instead of 16c., and Captain Davidson claimed, moreover, that the vesselmen who are tied up to 60c. Ore contracts are no better able to pay 16c. per ton for unloading than they were last season when the rate for the same service was but 14c. H. Coulby of Pickands, Mather & Co. stated that it would be useless to appoint a committee to confer with the dock managers, as no reduction would be made. He stated that nearly all the advance would go to the men employed on the docks. He also called attention to the fact that the wages of nearly all classes of workmen engaged in the lake transportation of Ore, even to the sailors, had been advanced, and expressed the opinion that there was no good reason why the Ore handlers should not share in this improvement of wages. Chief interest at the meeting centered, however, in the very emphatic remarks of L. M. Bowers, manager of the Bessemer Steamship Company of Cleveland (Rockefeller fleet), by reason of his prominence in the Ore transportation field, and also by reason of the fact that he is interested in dock property. Mr. Bowers declared that although his principals own and operate a dock at Ashtabula, Ohio, he was very much opposed to the recent advance, and that had he been enabled to be present at the meeting of dock managers held at Cleveland some days ago, and at which the advance was decided upon, he would have been heard from in no uncertain terms as to his opinion of the action, and with regard to the present method of dock management in general. He expressed his conviction that the existing system, which permits of the allowance of large rebates to furnaces by the docks, is the most iniquitous circumstance which confronts the vessel owner engaged in carrying Ore. In his belief the whole principle of the thing is wrong, and the matter should be taken up and a reform fought for on the theory that the vessel owner should pay only for the shoveling of the Ore and not for its transfer to stock piles. Incidentally he remarked that when a charge of 14c. per ton was made on the dock in which he is interested last season the result was entirely satisfactory. In conclusion he said: "We can operate our little dock at 14c. a ton and make a highly satisfactory profit out of it. No other business on earth that is managed on right principles would submit for a single day to such a matter as the abuse of rebates in handling Ore." Captain Davidson's motion for the appointment of a committee finally carried, and President Firth announced that he would make a selection of members later, although it is almost certain that there will be no change in conditions this year. Another matter which came up at the same meeting, and which will be likely to have an indirect influence on the Iron Ore trade, was the adoption of a uniform bill of lading for Coal cargoes of a form that will protect vessels against unreasonable delay at the port of discharge. This will, of course, facilitate dispatch, and will be much appreciated by vessels operating under what is known as double charters; that is, carry cargoes of Coal up the lakes and loading Ore on the return trip. Still another meeting held at Cleveland a few days ago was the gathering of representatives of the fuel companies having docks at the Lake Erie ports of Fairport, Ashtabula and Conneaut, Ohio, and Erie, Pa. There had been some apprehension on the part of vessel owners that following the general upward trend a considerable advance would be made in the price of fuel, but the fuel men realizing that most of the vesselmen were tied up to Ore contracts at 60c. contented themselves with a slight advance in prices.

Meanwhile work is being pushed in the preparation of the docks at lower lake ports for the handling of the Ore as soon as it comes down. The most extensive work along the line of improvement is, of course, at the Carnegie docks at Conneaut, Ohio. One feature of the equipment of these docks is the manner in which the whirlies are to be operated. In connection with them a number of bridges are to be constructed. Upon these cars will be operated, and after being loaded with Ore at the boat will be run out to the stock piles and dumped. The car haulage system consists of a stationary engine upon each dock, operating a drum for the large steel cables which run between the tracks. On these cables are clamps which may be attached to the cars to be moved.

With a sharp rivalry between the large Iron and Steel producing interests for the control of lake tonnage every development in the matter of the water transportation of Iron Ore is watched with exceptional interest, and this may, in a measure, explain the rather disproportionate amount of speculation which has been engendered during the past week by the incorporation of the Canada Inland Transportation Company. Toronto, Ottawa and Montreal capital is interested, and it is proposed to build at once a number of modern steel carriers. The primary object of the company is, of course, to build vessels suitable for the grain trade, but it is announced that they will also engage in the carrying of Ore from Lake Superior ports to the blast furnace at Hamilton, and the one to be hereafter mentioned whose establishment at Toronto is now proposed. The Tonawanda Iron & Steel Company, Tonawanda, N. Y., who have been purchasing wooden vessels suitable for the Iron Ore trade with reference to their own especial needs, who were stated some days ago to have concluded their purchases, are still figuring for vessels. The vessels thus far purchased are the "William H. Gratwick," "Moravia," "George Spencer," "B. L. Pennington," "Veronica," "Amboy," "Quito" and whaleback barge "191." Half of these vessels are steamers and will tow the others, which are barges or schooners. The proposition to establish at Toronto a branch of the Tonawanda Smelting Works, coupled with the above circumstances, has served to call attention to this phase of the situation to a greater extent than would otherwise have been the case. The Canadian bounty of $3 per ton on Ore mined in that country and the saving of a duty of $2.80 per ton are the chief points urged in its favor, while the disadvantages are apparent and rather numerous. The Bessemer Steamship Company (Rockefeller fleet) have purchased for $210,000 from the Globe

Iron Works of Cleveland the steel steamer "Globe." The vessel, which has been in commission for several seasons, is now being lengthened 42 feet amidships, and her carrying capacity will be brought up to the neighborhood of 5000 tons of Iron Ore. The great demand for tonnage available for the transportation of Ore is evidenced by the fact that two of the car ferry barges of the Wisconsin & Michigan Railway Company will be utilized to carry Ore from Escanaba to the furnaces of the South Chicago Furnace Company, at Irondale. There is but 10 feet of water at the company's dock, but it is estimated that each barge can carry 2500 tons of Ore on deck.

Reports to the Cleveland offices of extensive mine and dock interests at the upper lake ports indicate that everything possible is being done to facilitate the movement of Ore immediately upon the opening of navigation. A communication from C. H. Martz, chief engineer of the Duluth, Missabe & Northern Railway, states that the channel leading up St. Louis Bay to the Iron Ore docks at Oneonta is 110 feet wide and 16 feet deep. Off the outer extremity of Ore Docks Nos. 1 and 2 the channel is 400 feet wide and 20 feet deep, thus allowing the largest craft to make the turn. The channel between the docks under present conditions is from 150 to 125 feet wide and is 18 feet deep. The channel on the outer side of Ore Dock No. 2 is 105 feet wide and 18 feet deep. Ore Dock No. 2 is 1828 feet long, it having been extended 576 feet last year. This season the dock will be extended 576 feet further, which will make its outer extremity in line with Ore Dock No. 1. The latter dock is 2336 feet long. At a distance of 150 feet from the side of Ore Dock No. 1 a log dock extends from the shore for a distance of 1364 feet. This log dock and Ore Dock No. 2 are on opposite sides of Ore Dock No. 1. The entrance of J. J. Hill of the Great Northern Railroad into the field of Ore transportation is another new factor which has just loomed up and whose significance cannot be overestimated. The announcement of his acquisition of the Eastern Minnesota Road has been followed by the statement that a new Ore dock of 2,000,000 tons capacity will be constructed at Allouez Bay. There can be no doubt, however, that the influence of the Hill interests will be felt in some manner.

With few sales of Ore interest is naturally centering in the question of the opening of navigation, in so far as the Ore trade is concerned. Telegraphic reports to vesselmen from various points indicate that the shifty winds down the lakes have been tearing away the ice on the outer edge of the fields which have been softened up by the warm weather. The break extends entirely up the lake to Duluth. Inasmuch, however, as the ice varies in thickness from 35 inches on the south shore of Lake Superior to 50 inches on the north shore some time will doubtless be required before the lake is in navigable condition. Engineers are at work and managers have made arrangements to have vessels engaged in the Ore trade move by May 1. All the vessels managed in the offices of Ore shippers will be sent out as soon as there is a reasonable certainty that they can get through. Last year the first Ore boats loaded at Escanaba April 16, and the first cargoes were delivered at Ohio ports April 19. The first cargoes from Lake Superior ports reached Lake Erie docks April 25. Lake Superior navigation opened on the four preceding years on April 16, 11, 12 and 17, respectively, so that it will be seen that navigation will open this year some time later than the average, and fully four weeks later than last season, as feared. Then, too, the movement of Ore from the docks to the furnaces has been carried on actively, and the docks will be in much better shape than they were at the opening a year ago. Dock offices at the head of the lakes have been opened, and the first Ore has been dumped.

As stated above, little has been doing in vessel charters. Some owners of lake tonnage that is not entirely tied up by season contracts have recently received communications from representatives of the Ore companies at Cleveland with a view to the securing of additional contracts, an indication of more direct dealing resulting, of course, from the inability to do anything through the brokers. Little was acomplished, however, even in this manner by reason of the extravagant ideas of the vesselmen on the subject of rates. Apparently there is a disposition on the part of both the shippers and vesselmen to await the outcome of wild rates. The Ore market is equally quiet as far as actual sales are concerned, transactions being confined to the sale of a few odd lots. The market is, however, very firm and conservative quotations are as follows: Specular and Magnetic Ores, Bessemer quality, $3.50 to $4; Specular and Magnetic Ores, non-Bessemer, $3 to $3.50; Red Hematite Ores, Bessemer quality, $3.25 to $3.75; Red Hematite Ores, non-Bessemer quality, $2.25 to $2.75.

Pig Iron.—The past week has unquestionably added to the strength of the Pig Iron situation in all grades, but prices show no change. The only sales made have been of lots varying from 100 to 300 tons, and these sales have been made on the basis of $14.50 for Bessemer, $15 for No. 1 Foundry and $14.50 for No. 2 Foundry. Present indications are strongly indicative of further advances in quotations during the third and fourth quarters, a condition whose existence is conceded even by buyers of notoriously bearish tendencies. The production of Bessemer on the one hand is bound to be decreased by the actions resultant from the formation of the Republic Iron & Steel Company. This will take off Bessemer and engage in the manufacture of Forge the Mahoning Valley Furnace, while any supply of Bessemer which might have come from Andrews Brothers of Youngstown will be cut off for the same reason. An estimate made this week places the total sales of Bessemer for the last half of the year thus far made at 150,000 tons, and certain it is that no offerings of any size have been made within the past seven days. As stated above, sales of Bessemer have ranged from carload to 200-ton lots, and had there been in the market a buyer for a lot of 2000 or 2500 tons it is extremely doubtful if he could have been supplied. With Foundry Irons the situation presents an equally strong complexion. The confidence in higher prices, or at least the maintenance of present prices throughout the remainder of the year despite the increase of production so much discussed, is based on the excessive production. For one thing, stocks were reduced 1,000,000 tons last year, and it is argued that the new production from all sources will not equal this. Then the sales from stock during the month of March aggregated 82,000 tons, principally from Valley furnaces, exemplifying a condition which has probably never had a counterpart. On the other hand the increase in production during March was less than 22,000 tons. Indeed, it is almost certain that were production to cease there would not be sufficient Iron in the country to constitute more than one week's supply. Moreover, there is an extreme likelihood that the present month will see another cut off of stock. The knowledge of these conditions has induced a general impression that another advance of 50c. or 75c. or possibly $1 per ton may be anticipated in the very near future. The claim is made that sellers ought to be satisfied with present prices, but there is a moral certainty that they will not be. The conservative students of the situation admit that $20 Pig Iron is by no means so remote a possibility as it was a few weeks ago, although there is the general expression of a desire that this figure shall not be reached, because of the rapid decline that would be inevitable. The project for the establishment of a furnace at Toronto, Canada, has occasioned considerable talk, but there is little belief that it will have any appreciable effect upon the American market. A year will be required for the erection of a furnace, but Iron men declare that even were it to go in blast to-day the influence would not be perceptible. One seller estimates that 350,000 tons of American Pig Iron are now sold annually to Canadian consumers, and that this will not be reduced below 250,000 tons with the new furnace in operation. The situation in Lake Superior Charcoal Irons has the same elements of strength generally prevalent. Sales of small lots have been made this week at $18 and $18.25 on dock, at Lake Erie ports. The supply is, of course, well sold up, and no lots of any size are offered.

Finished Material.—The apparent lull in the market continues in a slightly lesser degree than last week, but the dropping off in the buying is not regarded by the more conservative interest as an indication of weakness, but is attributed rather to the difficulty and in many cases the impossibility of securing material, and to the fact that the mills are so fully filled is attributed the advance in prices made during the week past. Bar Iron is selling at 1.60c., Cleveland, and Machinery Steel at 2c. rates, half extras. No. 27 Sheets have brought 3c., and Galvanized 70c. and 10 per cent. off list. These quotations are, of course, for material out of stock, and for immediate acceptance. Sales of Pipe have been made at an advance over combination quotations, and sales are reported at 60 and five 10's for car lots, and 60 and four 10's and 5 for less than car lots. Small Angles cannot be had at any price as a rule, and the purchase of Plate is almost out of the question. The Structural Material constitutes, of course, the easiest phase of the market, but a comparison with conditions at this time last year presents a marked contrast. A number of sales are reported, but they are principally for apartment houses and other work of this class. The Rail market is very firm at old quotations, with considerable inquiry with reference to supply for suburban electric roads projected for Northern Ohio routes.

Old Material.—The situation has lost none of its strength during the past week, and, if anything, the mar-

ket has recovered in a degree from the seeming stagnation which followed the announcement of the formation of a Bar combine. The majority of the individual firms interested in the combine mentioned are apparently buying Scrap as their demands require. The supply, however, shows no improvement, and material of this class is as scarce as ever, if not indeed more so. The latest quotations are as follows: Steel Melting, $13; No. 1 Wrought, $15.75; No. 1 Cast, $12.50; Iron Rails, $19; Car Wheels, $15; Cast Borings, $9; Turnings, $10.

Cincinnati. (By Telegraph.)

Office of *The Iron Age*, Fifth and Main streets, CINCINNATI, April 19, 1899.

The past week has been a dull and listless one in Pig Iron circles. Trading has been confined almost exclusively to retail business, and there are now exceedingly few buyers in sight for anything beyond small lots for piecing out purposes. The ultra bull element show disappointment because the publication of last week's Pig Iron statement was not followed by an advance in prices. It is conceded, however, on all hands that the statement published is a powerful factor in establishing the strength of the furnace situation. Furnaces, while not disposed to advance prices especially in the face of the current dullness, are also found to be very strong in their ideas and unyielding in their stand for quotations. No surprise is expressed that after the brisk buying of last month there should now be a quiet spell. Buyers are the uncertain ones, and but few are found whose necessities do not compel them to inquire as to prices. There is evidence, however, that they are watching the market very closely. Prices are not changed, and to-day's quotations are a very fair average of selling values. Some quote 25c. above, and others 25c. below figures given herewith. In trading delivery is the most important factor. We quote f.o.b. Cincinnati as follows:

Southern Coke, No. 1	.... to $15.00
Southern Coke, No. 2	.... to 14.50
Southern Coke, No. 3	.... to 14.00
Southern Coke, No. 1 Soft	.... to 15.00
Southern Coke, No. 2 Soft	.... to 14.50
Southern Coke, Gray Forge	.... to 13.25
Southern Coke, Mottled	.... to 13.25
Ohio Silvery, No. 1	$16.75 to 17.25
Ohio Silvery, No. 2	16.25 to 16.75
Lake Superior Coke, No. 1	16.25 to 16.50
Lake Superior Coke, No. 2	15.75 to 16.00

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	$15.75 to $16.25
Lake Superior Car Wheel and Malleable	16.50 to 17.00

Plates and Bars.—The question of delivery never entered any more largely into the closing of an order than it does to-day. Mills find business active and a good list of buyers to select from. The market is very strong, and fairly represented by the following quotations, f.o.b. Cincinnati: Bars, wholesale, 1.60c., with half extras; Bars, retail, 1.75c., with full extras; Bar Angles, 1.75c., wholesale; Plates, 2¼c. for ¼-inch and heavier; Sheets, No. 27, 2.85c.; No. 10, 2.40c.

Old Material.—Prices have not changed much. New business has been quiet. Quotations, f.o.b. Cincinnati: No. 1 Wrought Railroad Scrap, $14 to $14.50 per net ton; Cast Scrap, $10.50 gross; Car Wheels, $14 gross; Iron Axles, $19 net; Iron Rails, $16; Steel Rails, $11.

St. Louis. (By Telegraph.)

Office of *The Iron Age*, 512 Commercial Building, ST. LOUIS, April 19, 1899.

Pig Iron.—No considerable activity is seen in Pig Iron circles this week. The usual interest, of course, attaches to the likelihood of midde of the year wants being filled, and quiet efforts are seen to look out for that period. Improvident foundrymen are still to be met, and the circumstance is surprising. No forecast of the balance of the year's production and possible wants can show that laying in stock can be unwise, and yet some wealthy foundries will try to buy as they need. Prices remain same as last week, and we quote for cash, f.o.b. cars St. Louis:

Southern, No. 1 Foundry	$15.50 to $16.00
Southern, No. 2 Foundry	15.00 to 15.50
Southern, No. 3 Foundry	14.50 to 15.00
No. 1 Soft	15.50 to 16.00
No. 2 Soft	15.00 to 15.50
Gray Forge	14.00 to 14.50
Mottled	13.75 to 14.25

Bars.—A rather quiet feeling is noted this week, with no unusual transactions reported. Readiness to quote is not manifested, and this holding back is to some extent due to the new Bar mills organization not being prepared to take hold of sales vigorously. Sales through jobbers are about at a normal state, and a fair supply is in dealers' hands. We quote Bar Iron at 1.55c. to 1.60c., base, St. Louis, in car lots, half extras. Jobbers hold small lots at 1.75c., base, and full extras.

Rails and Track Supplies.—A singular condition is seen as a result of the well filled order books of Rail mills. The Southwestern lumber interests are decidedly active in view of the demand for an increased price of lumber. Track extensions have to be quickly made, and to meet the pressure recourse must be had to Relay Rails, as makers cannot furnish New Rails without serious delays. Prices of Track Supplies show no change this week, and we quote as follows: Splice Bars at 1.50c. to 1.60c.; Track Bolts, with Square Nuts, 2.60c.; with Hexagon Nuts, 2.75c.; Spikes, 2.20c. to 2.30c.; Iron and Steel Links and Pins, 2c. to 2.10c.

Pig Lead.—The price paid for Lead Ore shows a decrease of 50c. per 1000 lbs., sales being made at $24.50. A stronger feeling and upward trend of prices is seen in Pig Lead, however, and Chemical is held at 4.20c. It is felt that this price will be increased before the week is out.

Spelter.—The top notch price was recorded for high grade Zinc Ore, and the figures show an increase of more than 100 per cent. over the cost of Ore a year ago. Fifty-two dollars was paid for high grade Ore, against $25 for same grade last year. Two hundred tons of Spelter were reported sold in this market to-day at 6.30c., and our report for same period last year shows price to have been 4c.

Birmingham.

BIRMINGHAM, ALA., April 17, 1899.

Without there being what one might term activity in the market there is yet a fairly moderate demand for Iron. It has been sufficient the past week to absorb a little more than the current make. There were some round lot inquiries for Basic Iron, with some fairly good sales, two of them being for good sized lots. The other grades have had a good steady demand in a moderate way, just enough to sustain prices and keep a steady market. Quotations have not been strictly maintained in every case. Sales have been made in some cases at slight concessions. In other cases sales have been above quotations. But on an average ruling quotations have not been disturbed. Some No. 2 Soft sold at $11.50 and some at $11.75. No. 2 Soft warrants were offered at $11.25 and some were held at $11.50. No sales reported. Gray Forge warrants were offered at $9.75, No. 3 Foundry warrants at $10.25; No. 2 Foundry warrants, $11.25. No. 2 Foundry, furnace delivery, is $11.50 to $11.75. There is a small leeway of, say, 25c. The export trade is very quiet. It can be reported as almost nominal in so far as fresh business is concerned, but there has been some inquiry the past week. Very little if any was worked.

The Mary Pratt furnace property, including 33 acres of land through which no streets have ever been cut, with a frontage of over a mile on railroad tracks, was sold this week, the deed of sale being made out to one F. E. Nolding. It was given out that the old furnace would be rehabilitated and a new 300-ton one erected. Furnaces require Ore, Coal, Limestone, accessible and convenient, and when pressed on these points the statement was made they had been secured. Your correspondent happens to know the ins and outs of this deal, and states positively that the property was purchased for the same parties who secured the Gate City property, of which mention has been made. The Mary Pratt property was bought for the Seaboard Air Line Railroad and it will be used for railroad purposes, trackage, yards, shops, &c. Another purchase that was concluded in the early part of the week is of significance. The Southern Railway bought of the William Handley Improvement Company two and one-half blocks of land in city limits extending from Twenty-first to Twenty-fourth streets and alongside the various tracks of other roads, paying therefor $100,000. The plan as originally intended was to include the property west of Twenty first to Twentieth street at $150,000 additional, which would give an opening on Twentieth street to the property and a frontage within 150 feet of the Union passenger depot, now used by all the roads. This would place the Southern in a position to have an emphatic "say" about several things of interest to itself and others. Owing to the action of some of the owners of the property involved in advancing price at last moment the trade for the last block collapsed.

J. W. Downer, representative of the National Tube Works in London, England, and Alex Smart arrived in Pittsburgh a few days ago to inspect the steel pipe that is being made by the National Tube Works Company for South African mines. The order amounts to about 5000 tons and the company have already shipped about 2 miles of the 10 miles embraced in the order. The pipe is 28 inches in diameter.

QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING APRIL 19, 1899.

Cap'l Issued.		Sales	Thursday.	Friday.	Saturday.	Monday.	Tuesday.	Wednesday
$47,100,000	Am. S. & W., Common	60,845	65⅛-67	65¼-66	66 -67	65⅝-67⅛	65⅝-67	66 -67
38,150,000	Am. S. & W., Pref. (7 % Cu)	5,310	98 -99⅛	98 -99⅛	98¼-99	98⅛-99	98⅛-99⅛	-99
9,250,000	Col. Fuel and Iron	94,288	90 -90⅛	86⅛-87⅛	88⅝-45	40⅛-46	44¼-44⅛	45 -49⅛
46,484,300	Federal Steel, Common	151,790	66⅛-69¼	66⅝-68⅝	68¼-69	66¼-69⅝	66 -67⅛	67¼-69⅛
52,253,500	Federal Steel, Pref. (6 % Cu.)	30,740	86⅝-87⅝	86⅛-87¼	87 -87⅛	88⅝-87⅝	86⅛-87⅞	86⅛-87⅛
20,000,000	Tennessee Coal and Iron	127,539	58¼-59⅛	59 -65	63⅞-65⅛	63½-66	63⅜-68	66 -68
.....	Cambria Iron, Phila*	2,186	-45½	45 -45¼	45 -45¼	-45⅝	-45⅝	.. ..
.....	Cambria, Scrip**	.....	.....	.....	.....	.....	.....	.....
.....	Cambria, Steel***	14,263	23¼-24	23⅛-23½	-23¼	23 -23¼	22⅞-23	22⅝-23⅛
.....	Penna. Common, Phila	2,102	68 -72	-70	-70	70 -70⅝	70 -70⅛	-71
.....	Penna. Pref., Phila	60	.....	-85	.....	-81	.....	.....
28,000,000	Tin Plate Common, New York	29,165	45½-46½	46 -47½	47 -47½	47⅜-48⅞	48 -49½	48 -49
18,000,000	Tin Plate Pref., N Y. (7 % Cu.)	1,010	.....	.....	.....	-94¼	93 -93⅝	92 -93
28,000,000	Tin Plate Com., Chic	24,984	44¾-46	45¼-47	46¾-47½	48 -50	48 -49	47⅜-49¼
18,000,000	Tin Plate Pref., Chic. (7 % Cu.)	1,097	94 -95¼	-92¾	-91½	91½-93	.....	-92½
32,000,000	National Steel Common, Chic	36,674	54⅛-56¾	54⅛-56	55⅛-57½	58¼-60	58⅝-59⅞	59 -59⅞
27,000,000	National Steel Pref., Chic. (7 % Cu)	900	92 -92¼	.....	-91⅞	92½-93	-92	92 -92½
32,000,000	National Steel, Common, N. Y.	98,300	54½-57	54⅛-56	55⅛-57	57½-60⅝	58¾-60	58¾-59⅞
27,000,000	Nat'l Steel, Pref., N. Y. (7 % Cu.)	4,135	92⅝-92¾	92 -93	92 -92½	92½-93	92¼-92⅞	.....
.....	Bethlehem Iron	380	-107	106½-107	-106½	.....	.....	.....
.....	Bethlehem Steel Rights	840	-22¾	.....	-23	-23	-23	-22⅞

* Par $50. ** Par $100. *** $1.50 per share paid in. Late Philadelphia and Chicago sales by telegraph.

Metal Market.

Office of *The Iron Age*, 232-238 William street, NEW YORK, April 19, 1899.

Pig Tin. — Under the leadership of London quotations the market here has advanced considerably, and the tone is firm, but business is not very active. Arrivals here during the last week were very heavy, and the totals, which we have received so far this month, amount to about 4440 tons. This is about all which can be expected this month. Our spot supplies are now very ample, considering that we had 1375 tons on the first of this month. The total including above arrivals amounts to 5815 tons, or enough for very good deliveries for this and next month. There are besides 2500 tons afloat, which are mostly due here in the month of May. Under these circumstances the premium on spot Tin has disappeared, and to-day's quotations are 25⅛c. to 25¼c. London has advanced from £111 2s. 5d., which was the closing price last week, to £114 12s. 6d. for spot and £115 5s. for futures, which are the closing prices to-day.

Copper. — The market here for spot is very strong, and it is still very difficult to buy for prompt delivery. Quotations for spot can only be given nominally, as there is practically no business doing in that line, and any metal that is being sold for spot delivery is being sold in very small quantities at a very unsettled price. We quote nominally 18½c. for Lake Superior Ingot, 17½c. for Electrolytic Wire Bars, Cakes and Ingots and 17¼c. to 17½c. for Casting Copper. During the last few days about 550 tons arrived from Europe, of which we hear 200 tons were Lake, coming back from Havre. This is the first movement of this kind which we have heard of, but its significance will be readily understood. The London market has advanced sharply for Standard Contract Copper, closing to-day at £76 for spot and £75 15s. for three months' futures. Best Selected has advanced to £78. These prices are the highest which we have experienced yet in this rise. It is worthy to note that the difference between Standard Contract Copper and Best Selected is now only £2, while heretofore it was £5. It is stated from abroad that Standard Contract Copper is under the control of the Americans, and that may be the reason for the very slight difference in the quotations between the two brands. Exports so far have been very light, and amount to only 2862 tons.

Pig Lead. — This metal is still quiet, but this week has maintained considerable firmness. The quotation to-day ranges between 4.32½c. and 4.37½c. There has been a fair demand at this price, but we hear of no large sales. St. Louis quotes 4.17½c. to 4.20c. London has declined to £14 7s. 6d.

Spelter. — It is very strong and higher, and spot is very scarce. Spot is now quoted 6.65c. to 6.75c., and shipments from the West 6.50c. to 6.60c. St. Louis quotes 6.30c. There is no apparent disposition shown toward buying ahead, and it is quite evident that consumers are living rather on a hand to mouth policy, not expecting a further rise. The Ore market has made rapid advances during this last week, and we understand that yesterday's figures was $52 per ton. Official advices which we have received from the Joplin district on Monday, however, named $51.50 per ton.

Antimony — Is very firm at 10c. for Hallett's; Cookson's has advanced to 11c. The demand is said to be good, and stocks are still very low here.

Nickel — Is very strong and rather scarce. Prices which are being quoted for Canadian Nickel range from 38c. to 40c. for lots larger than 1000 pounds, and 40c. to 45c. for smaller quantities.

Tin Plate. — There has been no change in price, and the company are still taking orders for latter half of this year on the basis of 4.05c. to 4.10c. for 100-lb. Cokes, New York. The advance in prices in England has stimulated business somewhat in this country, and in consequence the American Company were busy. The concern who found sufficient margin in prices a few weeks ago to take advantage of the drawbacks and buy English Plates find that, owing to the rise on the other side, there is scarcely margin to allow for this business under the present conditions.

John Stanton reports the Copper production in the United States and of the foreign reporting mines and United States exports as follows, in gross tons of 2240 pounds:

	Reporting mines.	Outside sources.	Total U. S. product.	Product foreign mines.	U. S. exports.
First half 1895	70,612	9,100	79,712	42,484	34,215
Second half 1895	84,885	6,600	91,485	43,674	30,507
Total 1895	155,497	15,700	171,197	86,178	64,722
First half 1896	94,180	7,200	101,380	42,255	58,216
Second half 1896	95,314	7,200	102,514	43,941	67,287
Total 1896	199,494	14,400	203,894	86,196	125,503
First half 1897	103,651	5,000	108,651	44,263	64,870
Second half 1897	100,555	6,900	107,455	44,007	64,340
Total 1897	204,206	11,900	216,106	88,270	129,210
First half 1898	112,687	7,800	120,487	40,880	68,284
Second half 1898	103,535	10,250	113,785	43,674	76,831
Total 1898	216,222	18,050	234,272	84,554	145,115
January, 1899	16,774	1,850	18,624	5,852	9,204
February, 1899	17,899	2,000	19,899	7,399	8,391
March, 1899	19,918	2,000	21,918	8,077	14,414

Iron and Industrial Stocks.

Sales generally this week have fallen considerably below those of last week, and in the majority of cases the stocks show but slight changes in quotations. A notable exception to a decline in sales is the Colorado Fuel & Iron, which shows a gain of 9 points and sales of 94,288, against 9975 last week. Tennessee Coal & Iron also shows a considerable advance in sales, as well as in quotations. In gneral, the stocks that were affected by last week's decline seem already to have almost entirely recovered from the depression. Stocks of the Pressed Steel Car Company were regularly listed on the exchange last Thursday, and were actively dealt in.

Industrial stocks show the following closing quotations:

Mich.-Peninsular Car, First 5s	115
Otis Elevator, Common	33⅛
Otis Elevator, Preferred	88⅛
H. R. Worthington, Common	55
H. R. Worthington, Preferred	114
Cramp's Shipyard Stock	76
Pratt & Whitney, Common	3¼
Pratt & Whitney, Preferred	35
E. W. Bliss, Common	138
E. W. Bliss, Preferred	125
U. S. Projectile	90
Pressed Steel, Common	55
Pressed Steel, Preferred	85⅛
Park Steel Co.	109
American Car & Foundry Co. Common	28¾
American Car & Foundry Co. Preferred	68

It is reported from Des Moines that the Iowa manufacturers of bricks, sewer pipe, tile and other clay products are forming a combination.

Consolidation of Great Lake Shipbuilders.

The American Ship Building Company, the name assumed by the combination of shipbuilding companies of the Great Lakes, is composed of the American Steel Barge Company of West Superior, Wis.; the Chicago Ship Building Company, the Milwaukee Dry Dock Company, the Cleveland Ship Building Company, the Globe Iron Works of Cleveland, the Ship Owners' Dry Dock Company of Cleveland and the Detroit Dry Dock Company, or as they are now known, after consolidation with several foundry and other interests, the Detroit Ship Building Company. The new combination will control three dry docks at Cleveland, one at Lorain, Ohio; one at Detroit and one at West Superior, and will consequently practically control repair work on the lakes as well as new construction. At the plants of the Chicago Company, the Cleveland Ship Building Company and the American Steel Barge Company heavy expenditures have been made within the past year for new tools and machinery and the equipment at all plants is modern and complete.

The governing committee and executive officers of the new company will be selected from the following names: Colgate Hoyt of New York and Samuel Mashit of Cleveland representing the American Steel Barge Company; Luther Allen and R. L. Ireland of the Globe Iron Works Company, Cleveland; W. L. Brown and H. H. Porter, Jr., of the Chicago Ship Building Company; A. McVittie of the Detroit Dry Dock Company, James Wallace of the Cleveland Ship Building Company, and W. E. Fitzgerald of the Milwaukee Dry Dock Company. Headquarters will be established at Cleveland. Robert Logan of Cleveland and Robert W. Hunt of Chicago conducted the surveys of the plants, prepared the estimates, &c., and James H. Hoyt of Cleveland attended to the legal details. Each of the yards in the combination has under construction from two to four steel freighters as well as smaller craft, the whole aggregating over $4,000,000 in value, and none of them can take contracts for delivery earlier than 1900.

The officers of the company will be selected to-day.

United States Patent Protection Extended.

The War Department, acting upon suggestions made by the Secretary of the Interior and the Commissioner of Patents, has determined to extend the patent laws of the United States, so far as they relate to the protection accorded owners of patents, &c., to all the islands which are now under military government by the United States. This action is tentative and is regarded as a measure of martial law that will be superseded by provisions of a more comprehensive scope when the Patent Commission, now engaged in an examination of the United States patent laws with a view to their amendment and codification, makes its final report.

The Republic Iron & Steel Company.— During the last week the Republic Iron & Steel Company have acquired the Sharon Connecting Railroad Company of Sharon, Pa.; the Mahoning & Shenango Dock Company and a limestone quarry at Sharon, also tracts of real estate and buildings at Sharon. Negotiations are pending for other properties. The formal organization of the company will not take place until about May 1.

A Cleveland dispatch states that the American Steel & Wire Company have strengthened their position by an alliance with James J. Hill, the railroad magnate, who, according to negotiations recently closed, is to occupy much the same relation to the American Company that John D. Rockefeller does to the Carnegie Company. Rockefeller has in his hands the entire operation of the rail transportation of the Carnegie ore from mine to dock and the vessel transportation of the ore from ports at the head of the lakes to Lake Erie docks. Hill, by means of his Eastern Minnesota and other recently acquired railroad interests, as well as new docks projected for immediate construction, will place the ore for the American Company on board vessels at upper lake ports, but his interest in the vessel end of the transportation will not be an open one as is Rockefeller's.

At a meeting on Tuesday evening, April 18, of the Engineers' Society of Western Pennsylvania, held in Pittsburgh, the matter of erecting a new building for the society's use was discussed. A Finance Committee was appointed to raise the necessary funds. Arthur Herschmaun, the Pittsburgh representative of Wm. Sellers & Co., Incorporated, of Philadelphia, read a paper entitled "High Speed Engines."

Preferred Stock of the Garvin Machine Company.

Harriman & Co., 120 Broadway, New York, offer for subscription at par and accrued dividends from April 1, 1899, $200,000 7 per cent. cumulative preferred stock of the Garvin Machine Company of New York. This company were incorporated under the laws of the State of New York in 1889 to manufacture tools and machinery, and the limit of capitalization was $100,000, upon which the company have earned, net, annually for the past nine years, 46 per cent. The business of the company has grown beyond their ability to meet the increased demand for their product, and in order to supply the additional capital the entire net proceeds from the sale of this preferred stock go directly into the company's business. The preferred stock offered for sale is entitled to preferential cumulative dividends of 7 per cent. per annum, to be provided for out of the net earnings of the company before any dividends are paid upon the common stock, and the preferred has priority over the common in respect to all property and assets of the company. The company reserve the right to retire the preferred stock on April 1, 1904, at 105 and accrued dividends to that date. Ten per cent. of the subscription must be deposited on application, and the remaining 90 per cent. and accrued dividends from April 1 on delivery of the stock.

American Steel Hoop Company Officers.

Officers and directors of the American Steel Hoop Company were officially announced yesterday as follows: President, C. S. Guthrie; first vice-president, C. A. Painter; treasurer, F. S. Wheeler; secretary, F. L. Clark; Executive Committee: C. S. Guthrie, chairman; George E. Painter, Veryl Preston, W. B. Leeds, D. G. Reid, W. H. Moore, F. S. Wheeler. The Directors are C. S. Guthrie, C. A. Painter, George E. Painter, Veryl Preston, W. E. Taylor, R. M. Gilbert, W. T. Graham, F. S. Wheeler, D. G. Reid, W. E. Reis, Henry Wick, J. H. Moore, W. H. Moore, W. B. Leeds, J. J. Treacy.

Reports to the effect that the Empire Steel & Iron Company are arranging for the purchase of the Mary Pratt Furnace and other properties in the Birmingham district are emphatically contradicted at the offices of the Empire Steel & Iron Company.

Baldwin Locomotive Works of Philadelphia have taken orders for 45 locomotives for the East Indian Government and 36 for the Uganda Railway.

The Cambria Steel Company have declared a dividend of 40 cents per share.

Officers of the Pressed Steel Car Company deny the rumor of negotiations for the consolidation of that company with the American Car Foundry Company.

The Fosdick Tool Works of Cincinnati, Ohio, are to build a new factory, which, when completed, will, it is said, employ more than 250 people.

The Bliss Heater Mfg. Company, formerly of Avon, Wis., it is said, will locate in Bushnell. New buildings will be commenced as soon as the weather will permit.

The Riter-Conley Mfg. Company of Pittsburgh have received a contract for constructing 1 mile of steel pipe for the Oro Grande Placer Mining Company of Colorado. The pipe will be 24 and 36 inches in diameter, and will be used for carrying water for the hydraulic mining apparatus in the gold mines of the company. The pipe will be riveted in 30-foot lengths and will be sent across the continent. The company also received a contract for three large oil tanks for use in the Southern oil fields of Russia. These tanks will probably be erected by American builders. The contract for another large oil tank, for use in the Southern California oil fields, has also been received from the Oxnard Construction Company. This tank will be 85 feet in diameter and 30 feet high, and will have a capacity for 30,000 barrels of oil. It will be the largest tank of its kind in California. A steel stack 9 feet in diameter and 140 feet high will also be erected for the Oxnard Company, together with several small tanks.

Canadian News.

Blast Furnace for Toronto.

TORONTO, April 15, 1899.—It now seems a certainty that Toronto is to have a blast furnace. The project, which was put forward last summer and which immediately dropped into the background again, has in the meantime been growing toward a reality. Though noiseless its progress has been none the less sure. Its inception, it will be remembered, was credited to Buffalo interests connected with the American pig iron trade and to certain Toronto manufacturing consumers of pig iron. Whoever the prime movers may be they have enlisted influential co-operation, for the success of the undertaking is believed to be assured.

The chief ministerial organ of Canada says that it has reason to believe the present bounty of $3 per ton will be continued on pig iron produced from domestic ore, whatever may be done as to the $2 bounty now paid on the pig iron product of foreign ore brought from the Lake Superior district of the United States and from Newfoundland. Under the clause of the Tariff act which creates them there is no provision for an extension of the bounties beyond April 25, 1901. That the Government had already been sounded on the question and found agreeable to renewal after that date seemed to be implied by the progress of the Dominion Steel & Iron Company's arrangements for building great works in Cape Breton this summer. That company, however, mean to export, and it remains an unsettled question whether the bounty would be paid on iron sold for consumption outside of Canada. Further, their preparations apparently involve the assumption that the bounty will be retained on foreign ore as well as on domestic, for though they have newly discovered ore deposits at hand in Cape Breton they manifestly mean to draw material from Newfoundland, as the Nova Scotia Steel Company have been doing, part of whose Newfoundland ore lands the leading spirits in the Dominion Steel & Iron Company have bonded.

The Toronto Blast Furnace Company are to have a capital of $2,000,000. Four prominent Toronto men, two of them in public life, have been actively connected with the formation of the company and will be among the largest shareholders in it. Three sites in Toronto are in view, one in the east end, the others in other localities. It is expected that work will be begun upon the construction of the furnace before the middle of next month. Its capacity is to be 200 tons per day. Though the organization has gone on silently its progress was not unnoticed, or at least unsuspected, by interests opposed to it.

For ore the Rainy River district is to be the main source of supply. When the Ontario & Rainy River Railway is carried a comparatively short distance further there will, it is calculated, be plenty of good red hematite ore to take the place of that now brought from the mines on the other side of the border to mix with Ontario magnetite ores.

A New Lake Fleet of Steel Vessels.

Application has been made to Parliament for the incorporation of the Canadian Inland Transportation Company, the applicants being William Christie, J. K. Osborne, Geo. A. Bertram, M.P., all of Toronto; Alex Lumsden, M.P.P., and John McRae of Ottawa, and Hon Senator Forget of Montreal. A fleet of ten steel carriers, measuring 276 feet in length by 45 feet beam, is to be constructed at once. Two of the vessels are in fact already laid down, and work is begun on them in the yards of the Bertram Shipbuilding Company, Toronto. Their capacity is to be adjusted to the 14-foot depth to which the St. Lawrence canals are now almost completely cut.

In addition to grain carrying it is the purpose of the company to go largely into the business of carrying Rainy River iron ore from Port Arthur to the blast furnace at Hamilton and to that which it is proposed to build at Toronto. The capital stock of the company is to be $4,000,000.

Welland Canal.

Welland Canal is to be opened for traffic on the 22d inst. A deputation visited the Government at Ottawa on the 13th inst. to urge that the canal be deepened. Among those included in it were W. J. Connor, Buffalo; W. Colby of the American Brazed Steel Company and Colgate White, Cleveland. These men represent a syndicate that proposes to erect a large steel elevator at Port Colborne, the Lake Erie mouth of the canal.

Furnace and Rolling Mills Amalgamation.

Negotiations are proceeding for the amalgamation of the Hamilton Blast Furnace Company and the Ontario Rolling Mills Company, both of Hamilton. The idea, in the event of amalgamation, is to have the new company operate the smelting works, rolling mills and forge works, all successful institutions, and to establish in addition a large steel plant. At present the companies employ altogether 600 hands. If the steel works are added this number will be very greatly increased. For some time the blast furnace company have been producing puddled bar, which has been used by some of the rolling mills instead of wrought scrap, which had previously been their sole raw material. If rolling mills are joined with the furnace the demands on the latter will be greatly increased, as scrap iron then would probably be nearly altogether disused. The steel plant was part of the original scheme, and was provided for in the agreement between the city of Hamilton and the founders of the blast furnace company.

Exporting Charcoal Iron.

An order for 1000 tons of pig iron for malleable castings has been received by the Deseronto Iron Company, the iron to be delivered in Liverpool England. This is an important transaction, as it shows there is a market outside of Canada for charcoal iron, of which the production is increasing. Besides the new Deseronto smelter there is the Midland Furnace of the Canada Iron Furnace Company, who are proceeding to build, all preliminaries having been completed. This order amounts to about one month's output of the Deseronto Furnace. So far American ore is being used, though tests of Ontario ore are being made. That of the Hastings district is the only kind experimented on. It contains an excess of sulphur. That the tests are not proving satisfactory may be inferred from the fact that further shipments of ore from the mines of the Lake Superor district of the United States are to be received at the furnace in May and June.

Metropolitan Power Company.

At Britannia, on the Ottawa, preparations are being made for the construction of the Metropolitan Power Company's works. Buildings have been rushed up for the accommodation of 300 workmen, and a steam plant is being erected for the construction of the canal. By November 15 the work is to be finished, according to the contract. This contract covers the building of the power canal, the masonry dam, and the foundation of the power house. The building of the latter is to be let as a separate contract. Specifications are being prepared for the water wheels and machinery to govern their speed, and for the shafting and gearing by which they will drive the electric generators, all of which will be let in one contract. Also the specifications for the electric generators to be placed in the power house at Britannia, and for the transformers and appliances to be placed within a sub-station in Ottawa are nearly ready. Within the next two months contracts for plant and machinery are to be let amounting to $200,000, or possibly $350,000. The company are applying to the city of Ottawa for an extension of their present ten-year franchise to one of 30 years.

Steel Company's Coke Works.

According to the North Sydney (Cape Breton) *Herald*, the Nova Scotia Steel Company have decided to establish coke works at North Sydney. A site is being surveyed. It is to be close to the International Railway and the harbor. At present the company draw coal from Cape Breton to their works at Ferrona, where the coking is done. As it takes about two cars of coal to make one of coke, there will be a great saving in haulage if ovens are established at North Sydney.

Trade Items.

An order has been placed by the Ottawa, Arnprior & Parry Sound Railway Company for the construction of 1000 freight cars, which are to be built in Ottawa. Ten new locomotives for freight purposes are being built for the road.

The Miami Cycle & Mfg. Company of Middleton, Ohio, propose to build a factory in Canada, probably at Lindsay.

A new rolling mill is projected for St. John, N. B. It would manufacture fish plates, iron pipe, &c. J. C. Robertson and T. McAvity & Sons are mentioned in connection with the enterprise.

C. A. C. J.

The Scranton Bolt & Nut Company have been organized at Scranton, Pa., with a capital stock of $150,000. The plant will have a capacity of 10,000 tons a year, at the outset, and will employ 200 men. A rolling mill will be erected in connection with the plant so that the company can manufacture their own bars. The directors are W. D. Zehnder, L. M. Horton, C. H. Welles, Hon. William Connell, John Jermyn, J. A. Lansing and T. H. Watkins. W. D. Zehnder is to be president, L. M. Horton secretary and treasurer and C. H. Welles attorney. W. D. Zehnder, the president, has been for sixteen years connected in a managerial capacity with the Lebanon Bolt & Nut Works, the largest concern of their kind in the United States.

Lake Iron Ore Matters.

DULUTH, MINN., April 15, 1899.—The injection of new elements into the Bessemer ore mining situation on the great lakes has been so rapid and continuous during the past few years that the trade views changes of magnitude that affect its entire future with stolidity and discounts their effect before they are fairly understood. It was a long time before the moves of the Carnegie-Oliver Company were understood by the ore trade, or by their direct competitors in the manufacture of steel. To-day the mourners' benches are well filled by those who might have seen and acted but did not. The most recent developments indicate that the capacity of these seats is to be more fully tested, and that the number of those who regret most seriously the mistakes of the past is still to be added to.

A most aggressive element now to be taken into the calculations is the American Steel & Wire Company, whose resources and policy were well demonstrated in their recent acquirement of the fleet of the Zenith Transit Company. It is very far from a wild guess to say that a close connection is made between this concern and the J. J. Hill railway interests as miners and shippers, and if this is so there will be a few well defined groups of affiliated interests in the Minnesota ore fields. So far as is now announced the Steel & Wire have control of the old mines of the Cleveland Rolling Mills Company on the Marquette range and the fleet connected therewith, and the Sauntry mine on the Mesaba range, together with the five ships of the Zenith fleet. But it is safe to hazard the statement that this company will not rest content with these supplies either in ore or ships. To-day they hold options on valuable mineral lands and mines, which are quite likely to be closed, and other consumers that have not arranged for a great portion of their requirements in raw material may soon be surprised to find how little there is open to them.

It is current report that one of the great combinations of steel makers and ore supplies is, in order to strengthen its position, negotiating for the largest Menominee range ore mine, and that a lease is likely to be taken at a price four or five times as high as it might have secured a far larger supply of fine Bessemer two years ago. This is an indication of the present trend of prices and of the reversal of opinions long and religiously held.

It is hard to tell just yet what percentage of independent ore producers yet remain, but it is safe to say that of the output of the lake region for 1899 not one-fourth will be by that class. More than a year ago *The Iron Age* editorially stated that the day of the independent miner with neither furnace, railway nor other connections was over, not alone in Minnesota but in Michigan as well, and the practical fulfillment of that prophecy has come even sooner than the writer then believed possible. In 1897 only 6 per cent. of the product of the Mesaba range was by these so-called independnent operators, but on other ranges the new conditions did not prevail; in 1898 the percentage on the Mesaba was still less and the furnaceman had invaded the old ranges, while in 1899 conditions will vary only in degree everywhere in the mining region.

The Queen group of mines, at Negaunee, secured by the Oliver Iron Mining Company, have an annual capacity for many years of not far from 500,000 tons. The possessors of the fees to these mines have been the Arctic and the Pioneer Iron companies, but recent changes have been made that have permitted reductions in the former royalties of 40 cents, and have resulted in the lease for 20 years by the Carnegie interests. The mines are doubtless the largest ore bodies near Negaunee, and are strictly non-Bessemer, giving a content of iron of about 61 to 62 and running from 0.110 to 0.120 phosphorus, a class of ores that the Carnegie interests have obtained considerable of in the past few months. The South Buffalo mine of the group has been exhausted and the lease surrendered, while the Buffalo soon will follow suit. The Prince of Wales, Queen and Blue are the chief ore bodies. The Blue is a very large and fine body, and will be the chief supply for many years. The mines are well equipped with machinery and vertical shafts are down wherever needed, and there is no great depth. They are worked on the caving system, introduced there by F. T. Cole, and the ore is very soft, much of it being opened for blasting by ore augers. Four hundred men are now at work, and 1000 will be employed constantly, a welcome change, for employment there has been very much interrupted in the past. Blue Buffalo and Old Queen are being worked, and machinery is being put into the New Queen.

Rumor has it that the Federal Steel Company have begun negotiations for the big Chapin, at Iron Mountain, for a sum said to be $2,500,000. This is an interesting matter, if true, for the mine is far from the company's other mines, and they must pay freight on their ore to other roads than that which they own. It would also seem to indicate that the Carnegie policy of securing old range non-Bessemers had commended itself to the Federal. D. H. Bacon, president of this company's Minnesota Iron Company, is to locate his headquarters at Duluth, moving there from Chicago soon.

Moro shaft of the Cleveland Cliffs Comany is being unwatered and will be in operation very soon. It is a deep shaft, 708 feet, has no very large body of ore and what there is not of high grade. It has been idle several years, but new prices permit successful work. Operations have been partly suspended at several of the Marquette range mines, on account of the late opening of navigation and the filling of available stock pile ground.

An immense amount of exploration is going on along the Mesaba, although it has been the belief of many mining experts that its deposits had some time ago been well exploited, on account of the peculiarities of its formation. John T. Jones, who opened the Biwabik, Adams and Ohio mines in the early days of the range, has returned and has secured options on a number of properties, which he has begun to explore. He now has four crews out. Five drill crews are working in 20—58—19 close to the Iron Chief mine, several will soon be at work at that property, four drills are working in 24—58—20, two in 6—58—17 and others at other portions of the range. On the Vermillion there are explorations going on for some 8 to 10 miles eastward from Ely, and on the well-known parallel veins south of the main body near there. Half a dozen concerns are at work between Ely and Tower, and on section 30, well known in law courts, work is under way. The Mahoning Ore Company are exploring in 36—63—13 and others in the same neighborhood. Around Negaunee considerable work of the kind is going on, and the lands of the Queen mines are to be tested, with a pretty good assurance of new funds. On the Menominee there are drills at work from one end of the range to the other, and before the season is over that district ought to be pretty well exploited.

A slip by some one made this correspondence last week say, in referring to the advances in price of ore, that one "of the big Mesaba mines, whose output was cleaned out at the very first, stands to lose $4,000,000 by its hurry to sell." It is almost needless to say there was one cipher too many in that figure.

Cambria and Lillie mines, at the east end of the Marquette range, are now under the control of the Republic Steel Company. They have mined a total of a little over 2,000,000 tons together, Cambria's largest product having been 110,000 tons in 1897 and Lillie's 211,000 in 1898. Both produce a soft ore, Bessemer, though close to the limit, and both have a good deal of unexplored territory that will probably be entered upon soon. The Cambria is down ten levels, the Lillie not so far, and both are in excellent shape for heavy business. D. E. W.

The New York Machinery Market.

Office of *The Iron Age*, 232-238 William street,
NEW YORK, April 19, 1899.

No new developments of especial importance have presented themselves to the business situation during the last week. The volume of transactions continues large and prices hold their firmness. In all quarters the trade reports that business during the first half of this month has kept up remarkably well. Builders of machine tools have had no chance to catch up and replenish their depleted stocks, but are rather running deeper into obligations and selling months ahead. We have heard of one large concern in this district who just placed an order with a well-known builder of planers something like six months ahead. Prices have been advanced all along the line, and from what information we can glean here the machinery business is now going through pretty much on the advanced scale which was set by the producers of raw materials. The machinery business has been placed on a higher level, and in view of the fact that the movement was begun at the bottom—*i. e.*, with the raw materials—the position seems especially strong. The producers of unfinished materials inaugurated the advance and held off sufficiently to force the consumers to meet their advance. Now as long as the demand for finished materials continues to be as strong as at present there is no apprehension of a slump in the prices of either pig iron or steel. The opinion is advanced in certain quarters that the top of the market has been reached and unless some unexpected factor in the situation develops, no material advance in prices is looked for for the remainder of the year. It is also understood, however, that no decrease in prices would be allowed by the producers of raw material during the year. It is well understood that the export trade has developed into a strong factor in the iron and steel industry in this country. The advance in prices in this country has attracted considerable attention on the other side, and the fact that superior goods can be turned out more quickly in this country than anywhere else is now better understood in the old world than ever before. This will bring in a great rush of foreign orders as soon as there is the slightest indication of a letting up in the domestic de-

mand. At present, however, there is no indication of a letting up of demand here, and all large manufacturers have their shops comfortably filled well up toward the third and fourth quarter.

It is said that the large manufacturers of leather belting are trying to effect a consolidation.

The most sensational report circulated about the street was to the effect that the Pressed Steel Car Company intend building a plant in Europe, which will be a duplicate to the one which that company are now building at McKee's Rocks, Pa. The object of the proposed European plant will be the construction of pressed steel cars, of course. In the issue of *The Iron Age* of March 2 a description of the material purchased for the McKee's Rocks plant was printed.

Additional contracts have been let for the construction of the plant of the Great Northern Paper Company, which is to be erected at Millinockett, Maine. The Riter-Conley Mfg. Company of 39 and 41 Cortlandt street were awarded the contract for five penstocks, weighing about 1800 tons. The tubes will be 11 feet in diameter, each section being of steel plates ranging in thickness from ½ to ⅝ inch. Each pipe is to be 1500 feet long.

The contract for the construction of the buildings was awarded to the Schiffler Bridge Company. The contract price is said to be about $100,000. Westinghouse, Church, Kerr & Co. of 26 Cortlandt street and Pittsburgh will equip the entire boiler plant with Roney mechanical stokers.

The authorities at the Brooklyn Navy Yard are still purchasing machinery for the equipment of the temporary machine shop, which is to be used until a new complete shop can be erected.

Bids are also being received by the authorities for machinery to be installed in the Watertown Arsenal.

It is said that the Lehigh Valley Railroad shops at Sayre, N. Y., will be doubled in size. The new shops are to be used for the building of passenger cars.

An order has been placed by the Bennett Mfg. Company of New Bedford, Mass., for nine Cahall boilers.

The Pequest Fibre Company of Belvedere, N. J., are installing a new plant at Belvedere for pressing up fibre ware, wash basins, cuspidors and other articles. The company are purchasing machinery for the plant.

The John Roach Shipbuilding Company of Chester are placing orders for the material to be used in the building of the two 10,000-ton freight steamships for the Hawaiian service. The Central Iron & Steel Company have been awarded the contract for the plates for one of the ships, amounting to about 1500 tons. The Union Iron Works of San Francisco, who were also awarded contracts for two of these ships, have ordered the engine forgings and rudder and stern frame forgings from the Cleveland City Forge and Iron Company of 11 Broadway, New York, and Cleveland, Ohio.

The New York office of the East Buffalo Iron Works, 11 Broadway, Theodore Thomas, manager, were awarded the contract for the cast iron work to be used in the construction of the Lenox avenue and 112th street school building.

M. J. Drummond & Co. of 192 Broadway, New York, were awarded the contract for 7000 tons of pipe for Lowell, Mass.

The Board of Water Commissioners of Dunkirk, N. Y., awarded the contract for a 6,000,000-gallon horizontal, triple expansion pump to the Snow Steam Pump Works of Buffalo, now a part of the International Steam Pump Company. It is said that the contract price was $17,000.

Bids have been opened for the two 5,000,000-gallon pumps to be installed in the Roxbury pumping station, Philadelphia. The sum appropriated for this purpose is $100,000. The bids were: Lake Erie Engineering Company, $69,350 for both pumps; Barr Pumping Engine Company, $51,000 for both; Robert Wetherill Company, $40,000 for both; Robert Wetherill Company, special bid, $64,000 for both; H. R. Worthington Company, $60,000 for both; Holly Mfg. Company, $41,900 and $29,900; I. P. Morris Engine Company, $36,950 for one pump, and Dosie Engine Company, $10,000 for one pump of special design.

The Board of Public Improvements of New York have authorized the erection of an additional pumping station at the Milburn reservoir to increase the Brooklyn water supply. A resolution was passed requesting the Board of Estimate to authorize the issue of bonds to the amount of $100,000 for this purpose and for additional supply sheds and elevated coal hoists. The new pumping station will be needed to supply water to the proposed 66-inch steel conduit for which a bond issue has been already asked. The new station is to have a capacity of 15,000,000 gallons per day. The cost is estimated at $50,000, and the other half of the appropriation asked for is to be spent for the coal machinery, supply sheds, &c.

The C. W. Hunt Company of 45 Broadway, New York, have just shipped the coal handling machinery for the power plants of the Dublin Tramway Company and the London Tram Corporation. These orders are said to be worth more than $25,000. A large shipment has also been made to the New South Wales Government's Department of Tramways, Sydney, Australia.

The Nicapol-Mariopol Mining & Metallurgical Company of Mariopol, Russia, have placed an order with the Brown Hoisting & Conveying Machine Company of 26 Cortlandt street and Cleveland, Ohio, for an ore loading and storage plant.

It is said that the contract for the refrigerating and ice manufacturing plant to be built by the Government at Manila has been awarded to the De La Vergne Refrigerating Machine Company of New York. Their bid of $195,162 was lowest.

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HARDWARE.

Condition of Trade.

THE market continues in the more even and settled state which has characterized it since the opening of the month. Advances are not coming along in so startling a manner as they did, but the trend still continues to be toward higher prices. A further advance went into effect on Monday on Wire Nails, and this class of products is very firm, owing to the heavy demand and the practically undisputed control of the market. A break has, however, occurred in Copper Wire. In several lines manufacturers are withdrawing extreme prices, or announcing advanced quotations, but in a great many goods they are exercising conservatism in the matter of advances, preferring not to make them unless the higher prices are pretty sure to be held. The volume of business, especially from the jobbers to the retailers, is good, and one of the causes of complaint is the difficulty of getting goods promptly from the manufacturers. The scarcity of the raw material is one of the causes which contribute to this condition, and in certain lines, for example those in which Wire is used, the inconvenience is quite serious, and manufacturers express solicitude in regard to their future supplies. The condition of foreign markets, especially in Germany, is such as to permit the continued exporting of many goods even at advanced prices, and the large producers of such goods are in most cases taking care of their foreign trade and make, if necessary, prices which enable them to compete successfully with European manufacturers.

Chicago.

(By Telegraph.)

General improvement is noted in the demand for Shelf Hardware on account of the brighter and warmer weather. The few genial spring days of the past week made a marked difference, causing much activity in lines which have been rather dormant. The demand has particularly increased for Poultry Netting, Garden Tools, Refrigerators and other spring goods. The demand for Tinners' Stock and Roofing Materials has also shown improvement owing to the activity in outdoor work. Mail orders have shown a decided increase. Buyers who have been holding off waiting for lower prices are now coming in and taking considerable quantities of goods. Jobbers report that they are unable to accumulate stocks in their warehouses, as goods are going out as rapidly as they are received from the factories. Some important advances have taken place during the week. Wire Nails and Wire have been marked up 20 cents per 100 pounds to the retail trade. Poultry Netting has also been advanced to 80 and 20 off, Chicago, and to 80 and 15 and 3 off for deliveries as far as the west bank of the Mississippi. Horseshoes have been advanced 35 cents per keg, and the classification has been changed. Mule Shoes, No. 1 and larger, have been placed on the same basis as Horseshoes. Heavy Hardware jobbers report the largest volume of business in their experience. The demand covers all kinds of goods which they handle.

St. Louis.

(By Telegraph.)

Interest attaches to the advances made on Monday covering all Wire Goods. Wire Nails and Barb and Plain Wire had an increase of 10 cents per 100 pounds on Pittsburgh quotations, which city is to be used in future as a basing point. St. Louis prices will carry an additional tariff of 20 cents to cover transportation. The continued high price of Spelter, which is 6.30 cents per pound to-day in St. Louis markets, has caused an advance of 10 cents on Galvanizing, which is now a flat rate of 50 cents per hundred on Wire Goods. In this connection it is interesting to note that Spelter was quoted at 4 cents per pound 12 months ago in this market. Galvanized Sheets must show an increased cost so long as Spelter holds to these figures. Tinned Plate shows stiff advances of from 40 cents on the cheaper brands to $1 per box on the best grade. Manufacturers claim that they are overrun with business, and shipments on new specifications will have to lay over until the second half of the year. Black Sheets are in good demand at advanced prices. All but one manufacturer of Horseshoes are said to have moved prices up 35 cents per keg, and, as business is only opening up in this line, further increases may be developed. As a whole the Hardware line is moving along in a comfortable way, and orders are being taken care of with fair promptness. Among Stove manufacturers unusual activity is noted, and one of the largest concerns have found it necessary to call in their traveling salesmen, owing to the already overcrowded condition of the manufacturing department. The agricultural interests are making every effort to counteract some of the season's backwardness, and the warmer weather in this region already shows its effect on vegetation.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—Trade continues without any abatement and orders for goods positively needed show indications of improved trade (on season goods especially) on the part of the retail merchant.

The fact that various lines of goods have advanced in price is not likely to restrict trade to any appreciable extent. The retail merchant may for the moment, day or week delay purchasing in order to replenish his stock, but the user is not likely to long postpone buying for his immediate requirements, especially when he finds the market likely to further advance rather than react.

Information has doubtless reached others, as it has us, that some houses or firms, and many salesmen possibly have innocently done their customers, the retail merchants, no service (to put it mildly) by intimating to them that the goods so quickly advanced could not remain at present prices. Such an opinion was based on speculative theory and without any positive knowledge, and in doing this they have ignored the fact that the wholesale merchants have found at the end of each calendar year since 1893 that the value of their stock of merchandise has shrunken at an average about 10 per cent. during the year. So, taking this estimate, goods have not advanced on the average to the level of 1892. We admit many goods have advanced more and others far less, but, taken as a whole, the average manufacturer, we can safely infer, has escaped through present prices from a loss in marketing his product and secured, perhaps, a fair average profit. But the trade statistics of the country show that declines of merchandise, and of Hardware especially (unlike declines and fluctuations of

stocks), have been usually of slow process, but the same trade statistics show that advances have usually quickly asserted themselves. There has been reason for this. Manufacturers have hesitated from deviating from a trodden path, rather sustaining a further loss for a short period than jumping prices which in their judgment could not be sustained.

Our own predictions have been freely circulated since last fall that material advances must take place in Hardware between the late fall months of '98 and the end of the Spring months of '99, and it was not until the business of the country expanded from week to week and month to month and the raw material not only advanced from week to week and month to month, but gradually became more scarce until it reached a point where the output was not equal to the demand, that prices of manufactured articles quickly advanced, first to make up for the extra expense of the product; second, the advance in wages; third, to secure a profit, and, fourth, to supply the demand.

We must realize that foreign countries have been fairly prosperous within the last year, that the demand for goods from foreign countries has largely increased, and that our manufacturers have been able to enter the foreign markets in successful competition. Farm products have been in active demand and have brought good prices, confidence has reasserted itself and millions of capital has been taken from vaults where it had been securely locked, and an era of prosperity seems to be opening for us, which so far as present appearances indicate can only be checked by a complete failure (which is not likely) in agricultural products. It has been estimated that one million more people are employed now than one year ago, wages have been increased and a more active demand for goods must certainly follow. And we believe that any wholesale firm, or any salesman from such wholesale firm, who would advise customers to delay purchasing, expecting lower prices, does an injury to the customer. We have been asked as a firm during the last three months, if it was a good time to buy goods. We have invariably answered yes, it was a good time to buy goods, and the more quickly the retail trade bought goods the better for them. We are naturally glad to see that our opinion has been confirmed by present conditions.

Goods remain very firm at present prices.

Louisville.

W. B. Belknap & Co.—The market is steady at the advances, but without any excitement. Speculative buying has evidently come to an end, and buyers are now interested in getting what they have bought delivered and in arranging for current wants.

The plowing season is on now through this part of the country and the whole South, so that there is the quiet in the way of merchandising that is coincident with that necessary performance, which is probably just beginning, owing to excessive wet and cold. At the same time the machine shops, railroads and other users of Steel and Iron are busy, with the prospects of plenty of work ahead, and their demands will be sufficient to keep mills active in furnishing supplies for some time.

Of course the present prices will stimulate production immensely, and we hear of old furnaces and mills being revived which were supposed to be absolutely beyond any vivifying influences.

Ten dollars or twelve dollars a ton on Bars makes a vast difference to the manufacturer, but this is insignificant compared with the advances on Plates and Sheets, which are double that. A Plate and Sheet mill in good operation, well supplied with the raw material, is as good as a gold mine to its owner in these days, and better than some we may have invested in during days gone by.

San Francisco.

Miller, Sloss & Scott.—Regarding trade conditions will say that there is a very perceptible improvement evident all along the line. Evidently confidence has been restored, and from this time on we may expect a largely increased business. Quite a trade has developed with Siberia recently, and it looks very much as if it would assume considerable proportions.

Collections are reasonably fair and bid fair to increase largely in the near future.

Omaha.

Lee-Glass-Andreesen Hardware Company.—Since our last report the weather conditions have taken a decided "flop." The icy blasts from the Northern Sierras have been supplemented by balmy breezes from the Everglades of Florida. Producers are now in the fields *en masse*, crowding the necessary farm work to its utmost limit. The volume of business is not as large as it would have been if spring weather had arrived at about its usual date. Now everybody is busy at outdoor work, consequently the matter of trading has to be postponed for a short time. Building improvements, railroad and other contract work has fairly started, and the demand for materials from these sources will undoubtedly be very large as the season advances.

The Western country throughout is in excellent condition, both financially and industrially, and from now on a heavy volume of business will undoubtedly be realized.

Portland, Oregon.

Corbett, Failing & Robertson.—The first Government report to the Agricultural Bureau regarding the outlook on winter wheat for season of 1899 was issued this week. As usual, Oregon and Washington fell on their feet. We had expected from reports received earlier that serious damage had been done by grain freezing out, and while we are inclined to think the Government report underestimates damage, are pleased that they do not find it more serious than at this time reported.

Trade is not yet showing the life and activity that we had hoped for in April. The backward spring is checking business, and low prices for wheat and wool tend to still further delay it. As yet we do not see that the high prices prevailing have tended to check trade, but certainly look for that result later. We on this coast do not feel the difficulty complained of in the East as to securing goods, as we always are obliged to cover a long time in advance owing to the distance we are from market, consequently we have large stocks in store and en route.

Cleveland.

The W. Bingham Company.—The past week or ten days has given us the first real spring weather of the season. Trade in consequence has picked up very materially and has increased the demand for season's goods largely; also caused a decided clamor for the goods already bought but undelivered. Manufacturers all seem to be decidedly slow in filling orders, claiming inability to get raw material. If this keeps up for any length of time there will undoubtedly be a still further advance in prices. The demand for Wire and Nails is still fairly good, but the mills are very far behind in filling orders.

St. Paul.

Farwell, Ozmun, Kirk & Co.—1899 has been an eventful year thus far with the wholesale Hardware trade, and now that prices have been so largely adjusted that we are not likely in the early future to see rapid or radical changes, business has begun to move along in about the usual channels.

The past winter has been one of a little more than average length, but it was quite free from severe storms, and on the whole was a pleasant winter. Spring is now here, and thus far it has been quite favorable.

Seeding will now progress rapidly with a continuance of propitious weather, and it is to be hoped that during the next two weeks the larger part of the wheat will be sown.

The prospect is that about the usual acreage of wheat

will be seeded, though the amount of fall plowing was somewhat less than usual, and therefore the risk of a lighter crop is materially increased.

The conditions of trade for the balance of the first half of the year are favorable, and all our houses are doing a satisfactory business. There is some increase in the volume of trade over that of 1898, perhaps one-half of it arising from the advances in prices. The balance of this increase comes, perhaps, about equally from the improved condition of the country and from the better methods employed in the sale of goods.

"Will the advances in the price of Nails, Wire, Tin Plate and a few other commodities tend materially to reduce consumption?"

This question is often in the dealer's mind.

The general belief, and we think it is correct, is that they have not reached as yet such an extent as largely to affect the demand.

The amount of Nails and Tin Plate required in the construction of a building is not large enough to render the present increase of cost in these articles an important factor.

Most articles in Builders' Hardware have not advanced largely in price, and it would now seem probable that there will be advances in the future in many lines, so that the present may be reasonably considered a favorable time for building operations. This feeling, we think, is shared by contractors and capitalists, and especially by our very large farming communities, and, upon the whole, we expect to see a considerably larger demand for Builders' Hardware this season than has been witnessed since 1892.

This will certainly be true if the Northwest shall be favored with an abundant harvest.

Collections are satisfactory.

Notes on Prices.

Wire Nails.—An advance has been made by the American Steel & Wire Company in the price of Wire Nails, as noted below. There continues to be an excellent demand for Nails and the manufacturers are not in all cases able to supply the goods as called for by their customers. In the new prices announced by the company a still further protection is given to the jobbing trade, to whom the advance is 10 cents a keg, while to the retail trade it is 15 cents, the difference between carload lots to the two classes being now 10 cents per keg instead of 5 cents as heretofore. Present quotations are as follows, f.o.b. Pittsburgh:

To jobbers in carload lots	$2.10
To jobbers in less than carload lots	2.12½
To retailers in carload lots	2.20
To retailers in less than carload lots	2.30

New York.—An improved demand for Wire Nails is reported, and there is little ground for complaint in view of the volume of business. Merchants refer to the fact that they have difficulty in keeping a full assortment. The advance of 10 cents to the jobbers and of 15 cents to the retailers noted above has gone into effect. Quotations are as follows:

To retailers, carloads on dock	$2.30 to $2.35
To retailers, less than carloads on dock	2.45 to 2.50
Small lots from store	2.55 to 2.60

Chicago, by Telegraph.—Manufacturers report an extremely good demand during the past week. They revised their prices on Monday and changed the manner of quoting. All quotations hereafter will be made delivered at the buyer's town, using as a basis the Pittsburgh prices, to which will be added the full rail freight. Single carload lots have been advanced to $2.35, Chicago, on this basis. Jobbers note a much better demand from the retail trade, evidently caused by the improved weather conditions permitting more outdoor work. They have advanced their prices on small lots from stock to $2.45.

St. Louis by Telegraph.—New prices are mentioned this week. Pittsburgh has been selected as a basing point for quotations and it is a good step to simplify the work in the makers' sales department. Including 20 cents freight charges from Pittsburgh to St. Louis we quote carload lots to jobbers at $2.30, base. In single cars the base is $2.40 and in smaller quantities $2.50, base, per keg. With the better weather conditions for use of Nails the movement in the next few weeks should be unusually good.

Pittsburgh.—Taking effect Monday morning, April 17, prices on Wire Nails were advanced by the American Steel & Wire Company 10 cents per keg to jobbers in large lots and 15 cents in carload lots and less than carload lots. The advance now to smaller trade in carload lots over the jobbers' price in large lots is 10 cents instead of 5 cents as formerly. This advance has been expected by the trade for some time, and as a consequence the jobbing trade have been buying liberally and shipments from the various mills have been large. The heavy advances in price of Wire Nails since the American Steel & Wire Company secured practically entire control of the Wire Nail trade have amounted to nearly $1 a keg, but they do not seem to have had the effect of curtailing demand to any great extent. A heavy volume of business is expected and still higher prices are not unlikely. We now quote Wire Nails to jobbers in carload lots, $2.10; to retailers in carload lots, $2.20; less than carload lots, $2.30, all f.o.b. Pittsburgh, with freight tariff to destination added. Contracts entered only for definite amounts and for delivery within 30 days from date.

Cut Nails.—The arrangement referred to in our last issue as entered into by the manufacturers of Cut Nails continues in effect without change. Current quotations are based upon the following prices, f.o.b. Pittsburgh:

To jobbers in carload lots	$1.75
To " in less than carload lots	1.80
To retailers in carload lots	1.80
To " in less than carload lots	1.95

It is understood that these prices are being steadily maintained in the East and that the few concerns outside the agreement are maintaining prices.

New York.—Prices are without further change and with an improving demand. We quote carloads on dock, New York, $1.90 to $1.95; small lots from store, $2.05 to $2.10.

Chicago, by Telegraph.—An advance of 10 cents has been made on small lots of Cut Nails, which are now quoted by jobbers at $1.90 from stock.

St. Louis, by Telegraph.—An advance has taken place in Cut Nails to an extent of about 15 cents per keg. Small lots from store are quoted at $1.95.

Pittsburgh.—As yet the Wheeling manufacturers of Cut Nails have not followed the advance made in Wire Nails, but it is not unlikely prices will be advanced in a few days. The volume of business in Cut Nails is reported to be quite large and the mills are actively employed. We quote Cut Nails at $1.65 in carloads and $1.75 in less than carloads, f.o.b. maker's mill, Wheeling.

Barb Wire.—An advance similar to that noted above in Wire Nails has been made in Barb Wire, with the announcement of a higher charge for galvanizing, rendered necessary on account of the increased cost of the raw material. Quotations are as follows, f.o.b. Pittsburgh:

To jobbers in carload lots, Painted	$2.20
" " Galvanized	2.70
" in less than carload lots, Painted	2.22½
" " " " Galvanized	2.72½
To retailers in carload lots, Painted	2.30
" " Galvanized	2.80
" in less than carload lots, Painted	2.40
" " " " Galvanized	2.90

New York.—With the coming of good weather and the advance of the season there is an improved movement in Barb Wire, and in view of the advance referred to above quotations are higher and the market characterized by a firm tone.

Chicago, by Telegraph.—Manufacturers and jobbers alike report a good movement in all kinds of Wire. Prices were advanced on Monday. Manufacturers have changed their method of quoting and will hereafter name a delivered price only, which is based on Pittsburgh quotations, with full rail rate added. This makes the new price equivalent to $2.20, Chicago, for single carload lots of Plain

Annealed Wire; $2.45, Chicago, for Painted Barb Wire; $2.95, Chicago, for Galvanized Barb Wire. The high price of Spelter has caused an advance of 10 cents per 100 on Galvanized Wire. The addition of galvanizing on Plain Annealed Wire up to No. 14 is 50 cents per 100 pounds, on Nos. 15 and 16 it is 85 cents and on Nos. 17 and 18, $1.10.

St. Louis, by Telegraph.—Present prices are affected by the general revision on Wire made on Monday. Plain Painted in carload lots to jobbers is quoted at $2.40 and jobbers quote smaller lots at $2.60 per 100 pounds. Another advance has been made in Galvanized and the increase over Painted is now 50 cents per 100 pounds. The great increase in price of Spelter is responsible for this increase in the spread and as experts believe that Spelter will show an even greater quotation higher prices for Galvanized may be looked for.

Pittsburgh.—Taking effect Monday morning, April 17, prices of Galvanized Barb Wire were advanced to jobbers in carload lots $4 a ton, and to the retail trade $5 a ton in carload lots and less than carload lots. We now quote as follows: To jobbers, $2.70; carloads, $2.80; less than carloads, $2.90, all quotations f.o.b. Pittsburgh, with freight tariff to destination added. No contracts entered except for definite amounts and for delivery within 30 days from date. The volume of business in Barb Wire is fair and considerable improvement is reported in the past week or two. All indications point to a very heavy volume of business this spring. It is not believed that the heavy advances made in prices are going to interfere with consumption to any great extent.

Smooth Wire.—An advance has also been made in Smooth Wire, quotations being based on the following prices:

To jobbers in carload lots	$1.95
To jobbers in less than carload lots	1.97½
To retailers in carload lots	2.05
To retailers in less than carload lots	2 15

The charge for galvanizing has been advanced to 50 cents on sizes from 6 to 14 inclusive; on Nos. 15 and 16 it is 85 cents and on Nos. 17 and 18, $1.10.

Pittsburgh.—Taking effect Monday morning, April 17, Plain Wire to jobbers was advanced $2 a ton. We now quote: Jobbers, $1.95; to smaller trade, carload lots, $2.05, and less than carload lots, $2.15. On Galvanized Plain Wire all sizes up to and including No. 14, 50 cents advance; 15 and 16, 85 cents; 17 and 18, $1.10, all f.o.b. Pittsburgh, with freight tariff to destination added. No orders entered except for definite amounts and for delivery within 30 days from date of contract.

Horseshoes.—A further advance of 35 cents per 100 pounds is announced under date April 12 by most of the manufacturers of Horseshoes. The revised prices are represented by the following quotations of the Rhode Island Perkins Horseshoe Company, Providence, R. I., terms cash 30 days or 2 per cent. discount for cash in 10 days, f.o.b. cars Valley Falls, R. I., freight being equalized to all points:

	Cents per pound.
Extra Light, Light, Medium and Heavy Pattern Horseshoes, No. 2 and larger	3.35
Long Heel Shoes, No. 2 and larger	3.35
Favorite Shoes, No. 2 and larger	3.35
Iron Countersunk Shoes, No. 2 and larger	3.35
Snow, Road and Trotting Shoes, No. 2 and larger	3.35
X. L. Steel Horseshoes, No. 2 and larger	3.85
Cow Boy Shoes, No. 2 and larger	4.35
" " " Plain, No. 2 and larger	3.85
Thin Steel Countersunk Shoes, No. 2 and larger	4.35
Mule Shoes, No. 1 and larger	3.35
0 and 00 Mule Shoes	4.85
Jack Shoes	5.85
Light, Medium and Heavy Toe Weight Shoes, No. 2 and larger	5.10
Extra Light and Light Side Weight Shoes, No. 2 and larger	6.85
Calked Shoes, No. 2. and larger	3.85
" Mule Shoes, No. 2 and larger	4.35
Goodenough Army and Heavy Patterns, No. 2 and larger	3.60
" Winter Pattern, No. 2 and larger	4.10

All Horseshoes No. 1 and larger ¼ cent per pound extra.

Among the manufacturers who unite in the adoption of this advance are the Rhode Island Perkins Horseshoe Company, Phœnix Horseshoe Company, Bryden Horseshoe Company, Standard Horseshoe Company, Tredegar Iron Works, Old Dominion Iron & Nail Works Company, Crescent Horseshoe & Iron Company and Diamond State Iron Company. The prices announced above apply to Phœnix, Bryden and American Horse and Mule Shoes, other makes, including the Tredegar, Old Dominion, Crescent and Diamond State, being 5 per cent. less. Manufacturers are refusing to accept orders for future delivery except at prices ruling at time of shipment.

Wrought Iron Goods.—A further advance of about 10 per cent. has been made in the prices of Wrought Iron Goods.

Copper Wire.—Two of the principal combinations in Copper Wire have dissolved and their affairs are now being liquidated and wound up. The pools referred to have been in existence for about four years and some surprise is manifested at the dissolution of so powerful an organization at a time when there is such a demand for the goods at greatly increased prices over those prevailing a few months ago. The goods controlled by the liquidating pools are Hard and Soft Drawn Plain and Tinned Copper Wire, Weather Proof and Fire Proof Underwriters', Office and Annunciator Wires. The pool on Cotton Covered Magnet Wire is still intact and so far Flexible Lamp Cord is not affected. In view of the dissolution of the combination the market is now on these lines an open one and there has been something of a yielding in price notwithstanding the strength of the market in Ingot. Hard and Soft Drawn Copper Wire may be quoted in a general way at 19 cents, base, but this figure has been shaded and there is some unevenness in prices. The further course of the market will be awaited with interest. The plausible explanation for selling a manufactured product lower than the price of its raw material is that the Wire is made of Copper bought at much lower prices, together with possibly some other good and sufficient reason acceptable to the people interested. But it is thought by some that there may be a special reason for the break at this time and that developments may lead in the direction of a further control of the market.

Paris Green.—The demand for Paris Green continues moderate at unchanged base of 12 to 12½ cents in Arsenic kegs or casks. The following are 30-day net prices:

	Cents per pound.
Arsenic kegs or casks	12 to 12½
Kegs of 100 to 175 pounds	12½ to 13
Kits of 14, 28 and 56 "	13½ to 14
Paper boxes, 2 to 5 "	13½ to 14
" " 1 pound	14 to 14½
" " ½ "	15 to 15½
" " ¼ "	16 to 16½

Wire Cloth Lists.—We have already referred to the fact that the principal manufacturers of Wire Cloth united at their meeting early in March in the adoption of a revised list covering Wire Cloth of all kinds, and thus correcting the diversity which has existed in the lists and methods of classification of the different makers. The result of these deliberations is given herewith, the new list being presented in full. It will be observed that many of the former list prices remain unchanged, but there are sufficient changes to make the list practically a new one.

In regard to this list the following points are to be noted:

No length less than 100 feet shall be understood to be a roll.

All subdivisions to form the various grades of Wire Cloth must conform to these lists.

The Washburn & Moen gauge is the standard for Iron or Steel Wire and the Old English gauge for Brass and Copper Wire.

The mesh in Wire Cloth is defined as the distance from the center to the center of the Wire per lineal inch, and in Screen Cloth the mesh means the space between the Rods or Wires.

The agreement of the manufacturers does not relate to the matter of discounts or the adoption in any way of uniform prices, but simply to the adoption of a uniform list, which will tend to remove much of the confusion which has heretofore existed, and will doubtless be appreciated by the trade on account of its comparative simplicity and convenience.

Price-List and Standard Gauges of Wire Cloth.

March 7, 1899.

Iron or Steel Wire Cloth.

No. Mesh.	No. Wire.	Cts. per sq. ft.	No. Mesh.	No. Wire.	Cts. per sq. ft.	No. Mesh.	No. Wire.	Cts. per sq. ft.	No. Mesh.	No. Wire.	Cts. per sq. ft.	No. Mesh.	No. Wire.	Cts. per sq. ft.	No. Mesh.	No. Wire.	Cts. per sq. ft.	No. Mesh.	No. Wire.	Cts. per sq. ft.	No. Mesh.	No. Wire.	Cts. per sq. ft.
1	3	88	2	11	32	4	12	60	6	22	12	10	21	32	16	28	17	22	32	19	30	33	27
1	4	73	2	12	27	4	13	48	6	23	10	10	22	27	16	29	15	22	33	17	30	34	23
1	5	60	2	13	22	4	14	38	6	24	8	10	23	22	16	30	13	22	34	15	30	35	20
1	6	48	2	14	17	4	15	32	6	25	7	10	24	17	16	31	12	22	35	13	30	36	19
1	7	38	2	15	14	4	16	27	7	15	60	10	25	14	16	32	11	22	36	12	35	29	80
1	8	32	2	16	12	4	17	22	7	16	48	10	26	12	16	33	10	24	25	77	35	30	67
1	9	27	2	17	10	4	18	17	7	17	38	10	27	10	16	34	9	24	26	65	35	31	57
1	10	22	2	18	8	4	19	14	7	18	32	10	28	8	16	35	8	24	27	55	35	32	47
1	11	17	2⅛	8	73	4	20	12	7	19	27	10	29	7	18	23	60	24	28	46	35	33	40
1	12	14	2⅛	9	60	4	21	10	7	20	22	12	19	60	18	24	48	24	29	38	35	34	36
1	13	12	2⅛	10	48	4	22	8	7	21	17	12	20	48	18	25	38	24	30	30	35	35	30
1	14	10	2⅛	11	38	4⅛	12	73	7	22	14	12	21	38	18	26	32	24	31	26	35	36	27
1	15	8	2⅛	12	32	4⅛	13	57	7	23	12	12	22	32	18	27	27	24	32	22	40	31	68
¾	4	88	2⅛	13	27	4⅛	14	45	7	24	10	12	23	27	18	28	22	24	33	19	40	32	57
¾	5	73	2⅛	14	22	4⅛	15	35	7	25	8	12	24	22	18	29	17	24	34	17	40	33	48
¾	6	60	2⅛	15	17	4⅛	16	29	7	26	7	12	25	17	18	30	15	24	35	15	40	34	44
¾	7	48	2⅛	16	14	4⅛	17	24	8	16	60	12	26	14	18	31	13	24	36	13	40	35	40
¾	8	38	2⅛	17	12	4⅛	18	19	8	17	48	12	27	12	18	32	12	26	26	77	40	36	36
¾	9	32	2⅛	18	10	4⅛	19	15	8	18	38	12	28	10	18	33	11	26	27	65	40	37	32
¾	10	27	2⅛	19	8	4⅛	20	13	8	19	32	12	29	8	18	34	10	26	28	55	45	33	70
¾	11	22	3	10	60	4⅛	21	11	8	20	27	12	30	7	18	35	9	26	29	46	45	34	58
¾	12	17	3	11	48	4⅛	22	9	8	21	22	14	20	60	18	36	8	26	30	38	45	35	50
¾	13	14	3	12	38	4⅛	23	7	8	22	17	14	21	48	20	24	62	26	31	30	45	36	46
¾	14	12	3	13	32	5	13	60	8	23	14	14	22	38	20	25	52	26	32	26	45	37	42
¾	15	10	3	14	27	5	14	48	8	24	12	14	23	32	20	26	43	26	33	23	50	34	80
¾	16	8	3	15	22	5	15	38	8	25	10	14	24	27	20	27	35	26	34	19	50	35	65
⅝	5	88	3	16	17	5	16	32	8	26	8	14	25	22	20	28	27	26	35	17	50	36	60
⅝	6	73	3	17	14	5	17	27	8	27	7	14	26	17	20	29	24	26	36	15	50	37	56
⅝	7	60	3	18	12	5	18	22	9	17	60	14	27	15	20	30	20	28	27	77	55	35	80
⅝	8	48	3	19	10	5	19	17	9	18	48	14	28	13	20	31	17	28	28	65	55	36	65
⅝	9	38	3	20	8	5	20	14	9	19	38	14	29	12	20	32	15	28	29	55	55	37	60
⅝	10	32	3⅛	11	60	5	21	12	9	20	32	14	30	11	20	33	13	28	30	46	60	36	85
⅝	11	27	3⅛	12	48	5	22	10	9	21	27	14	31	10	20	34	12	28	31	35	60	37	70
⅝	12	22	3⅛	13	38	5	23	8	9	22	22	14	32	9	20	35	10	28	32	30	60	38	65
⅝	13	17	3⅛	14	32	5	24	7	9	23	17	14	33	8	20	36	9	28	33	26	64	37	85
⅝	14	14	3⅛	15	27	6	14	60	9	24	14	14	34	7	22	24	77	28	34	23	64	38	70
⅝	15	12	3⅛	16	22	6	15	48	9	25	12	16	21	73	22	25	65	28	35	19	64	39	65
⅝	16	10	3⅛	17	17	6	16	38	9	26	10	16	22	60	22	26	55	28	36	17	70	38	90
⅝	17	8	3⅛	18	14	6	17	32	9	27	8	16	23	48	22	27	46	30	28	66	70	39	80
2	6	88	3⅛	19	12	6	18	27	9	28	7	16	24	38	22	28	38	30	29	56	74	39	$1.00
2	7	73	3⅛	20	10	6	19	22	10	18	60	16	25	32	22	29	30	30	30	47	74	40	90
2	8	60	3⅛	21	8	6	20	17	10	19	48	16	26	27	22	30	26	30	31	37	80	40	1.20
2	9	48	4	11	73	6	21	14	10	20	38	16	27	22	22	31	22	30	32	31	80	41	1.10
2	10	38																			90	42	1.45

Brass and Copper Wire Cloth.

2	8	$4.00	4	14	1.75	6	21	.45	12	21	1.20	16	28	.40	20	33	.27	26	27	1.75	35	35	.42
2	9	3.50	4	15	1.20	6	22	.40	12	22	.85	16	29	.35	20	34	.25	26	28	1.20	35	36	.37
2	10	3.00	4	16	.85	6	23	.35	12	23	.60	16	30	.30	22	25	1.5	26	29	.85	40	30	1.75
2	11	2.50	4	17	.60	8	16	3.00	12	24	.50	18	22	2.50	22	26	1.20	26	30	.60	40	31	1.25
2	12	1.75	4	18	.50	8	17	2.50	12	25	.45	18	23	1.75	22	27	.85	26	31	.50	40	32	.75
2	13	1.20	4	19	.45	8	18	1.75	12	26	.40	18	24	1.20	22	28	.60	26	32	.45	40	33	.60
2	14	.85	4	20	.40	8	19	1.20	12	27	.35	18	25	.85	22	29	.50	26	33	.40	40	34	.58
2	15	.60	4	21	.35	8	20	.85	14	20	2.50	18	26	.60	22	30	.45	26	34	.35	40	35	45
2	16	.50	5	13	3.00	8	21	.60	14	21	1.75	18	27	.50	22	31	.40	26	35	.30	40	36	.42
2	17	.45	5	14	2.50	8	22	.50	14	22	1.20	18	28	.45	22	32	.35	26	36	.27	45	31	1.75
2	18	.40	5	15	1.75	8	23	.45	14	23	.85	18	29	.40	22	33	.30	30	28	1.25	45	32	1.25
3	10	4.00	5	16	1.20	8	24	.40	14	24	.60	18	30	.35	22	34	.27	30	29	.90	45	33	.85
3	11	3.50	5	17	.85	8	25	.35	14	25	.50	18	31	.30	22	35	.25	30	30	.65	45	34	.65
3	12	2.50	5	18	.60	10	17	3.00	14	26	.45	18	32	.27	24	26	1.75	30	31	.55	45	35	.60
3	13	1.75	5	19	.50	10	18	2.50	14	27	.40	20	23	2.50	24	27	1.20	30	32	.47	45	36	.55
3	14	1.20	5	20	.45	10	19	1.75	14	28	.35	20	24	1.75	24	28	.85	30	33	.42	50	34	.85
3	15	.85	5	21	.40	10	20	1.20	14	29	.30	20	25	1.20	24	29	.60	30	34	.37	50	35	.65
3	16	.60	5	22	.35	10	21	.85	16	21	2.50	20	26	.85	24	30	.50	30	35	.33	50	36	.58
3	17	.50	6	14	3.00	10	22	.60	16	22	1.75	20	27	.60	24	31	.45	30	36	.30	60	35	.88
3	18	.45	6	15	2.50	10	23	.50	16	23	1.20	20	28	.50	24	32	.40	35	29	1.75	60	36	.70
3	19	.40	6	16	1.75	10	24	.45	16	24	.85	20	29	.45	24	33	.35	35	30	.90	60	37	.60
3	20	.35	6	17	1.20	10	25	.40	16	25	.60	20	30	.40	24	34	.30	35	31	.75	70	37	.80
4	11	4.00	6	18	.85	10	26	.35	16	26	.50	20	31	.35	24	35	.27	35	32	.55	80	38	1.00
4	12	3.00	6	19	.60	12	19	2.50	16	27	.45	20	32	.30	24	36	.25	35	33	.48	90	39	1.25
4	13	2.50	6	20	.50	12	20	1.75										35	34	.45	100	40	1.45

Tinned Milling Grade Wire Cloth.

2	17	15	9	24	15	20	30	25	32	36	28
3	19	15	10	25	18	22	31	28	34	36	33
4	20	15	12	26	18	24	32	28	36	36	40
5	21	15	14	27	18	26	33	28	40	36	45
6	22	15	16	28	18	28	34	28	45	36	53
8	23	15	18	29	18	30	35	28	50	36	62

Extra Fine Brass Wire Cloth.

No. Mesh		Per sq. ft.	No. Mesh.		Per sq ft.
110	Plain	$1.50	150	Twilled	$3.00
120	"	1.75	160	"	3.60
130	"	2.25	170	"	4.20
110	Twilled	1.60	180	"	4.80
120	"	1.85	190	"	5.40
130	"	2.35	200	"	6.00
140	"	2.55			

Iron and Steel Screen Wire Cloth.

Inch Space.	No. Wire.	Cts. per sq. ft.	Inch Space.	No. Wire.	Cts. per sq. ft.	Inch Space.	No. Wire.	Cts. per sq. ft.	Inch Space.	No. Wire.	Cts. per sq. ft.
2½	000	75	1⅜	3	46	¾	5	55	1/4	9	46
2½	00	60	1⅜	4	40	⅞	6	48	½	10	40
2¼	00	64	1¼	2	64	⅞	7	40	⅜	8	64
2¼	0	55	1¼	3	55	⅞	5	64	⅜	9	55
2	0	64	1¼	4	46	⅞	6	60	⅜	10	48
2	1	55	1¼	5	40	⅞	7	55	⅜	11	40
1¾	0	72	1	3	64	⅞	8	48	¼	10	64
1¾	1	64	1	4	55	⅞	9	40	¼	11	55
1¾	2	55	1	5	46	½	6	64	¼	12	48
1¾	3	46	1	6	40	½	7	55	1/4	13	40
1½	1	64	⅞	4	64	½	8	51	3-16	13	46
1½	2	55									

Fish Glue.—The following is the price-list of Fish Glue as used by leading manufacturers:

List A.—Bottles with Brush.

	Per dozen.
½-ounce Bottles, 2 dozen in Box	$0.80
1 " " 1 " "	1.20
2 " " 1 " "	1.80

Packed in gross and half gross cases.

Patent Tin Cans with Adjustable Brush.

	Per dozen.
½-Gill, 1 dozen in Box	$1.80
1 " 1 " "	2.40

Packed in gross and half gross cases.

List B.—Mechanics' Glue in Patent Tin Cans.

	Per dozen.
½-Pints, 2 dozen in case	$3.25
Pints, 1 " "	5.50
Quarts, 1 " "	9.50

List C.—Mechanics' Glue in Patent Tin Cans.

	Per dozen.
½-Gallon, ½-dozen in case	$15.00
1 " ½ " "	27.00

A. W. Dodd & Co., Gloucester, Mass., announce the following discounts applying to above list, terms cash 30 days, with delivery when orders amount to $5 or over:

	Discount.
On List A	50 per cent.
" " B	48 "
" " C	45 "

Glass.—The Window Glass market is devoid of any especial features. New independent factories are reported as in process of construction, while the efforts of the American Glass Company are still being put forth to induce the independents to come into the new combine. It is expected that a meeting of the directors of the American Glass Company will be held this week, at which time present and future prices will be considered. American Glass Company's prices to the regular trade are unchanged as follows:

Districts.	A.	B.	C.	D.	E.
5000 boxes or more	85 & 10	85 & 10	.....	.....	85 & 10
Carloads	85	85	85 & 5 & 2½	.....	85
3000 boxes or more	85 & 5	85 & 5	.....	.....	85 & 5 & 2½
1000 boxes or more	.....	.....	85 & 10 & 2½	.....	.....

These prices are subject to freight allowance.

Paints and Colors.—*White Lead, &c.*—The price of Red Lead and Litharge has been advanced ¼ cent per pound by manufacturers, but no change was made in White Lead prices. Demand shows no falling off, while manufacturers are busy filling contract orders. White Lead is quoted as follows: In lots of less than 500 pounds, 6¼ cents; 500 pounds or over, 5½ to 5¾ cents.

Oils.—*Linseed Oil.*—An advance of 2 cents in the price of Linseed Oil has been announced by the manufacturers since our last issue, as follows: City Raw in lots of less than five barrels, 50 cents per gallon; five barrels or more, 49 cents per gallon: out of town brands, 1 cent less. The usual 2-cent advance per gallon is obtained for Boiled Oil. Calcutta Oil remains unchanged, 58 cents per gallon. The market is strong at the advance and devoid of speculative features. High price of Seed and scarcity of Oil are the cause of the advance. Higher priced oil would not surprise the trade.

Spirits Turpentine.—The new crop of Turpentine has begun coming in more freely, and while stocks at New York and Savannah are light arrivals have been sufficient to supply the demand, which has been confined to small jobbing lots. A falling off in price is a feature of the market, and with a downward movement large buyers are holding off for still further decline. Present quotations are as follows: Southerns, 43 cents per gallon; machine made barrels, 43½ cents at New York.

D. A. Fesler & Co. have succeeded Hammond & Esley at Riverside, Iowa.

JOHN H. LECHER'S retail Hardware store, at Nanticoke, Pa., was recently destroyed by fire. Mr. Lecher is erecting a new brick building opposite the old stand, and expects to take possession of it some time in June next. His line comprises Shelf Hardware, Stoves and Tinware.

Manufacturers' Association of New York.

THE fifth annual report to the Board of Directors of the Manufacturers' Association of New York, by the president and secretary, under date of April 17, 1899, reviews the various subjects of interest to the association occurring within the past year. Some features of national importance bearing on the great progress made in manufactures, exports, &c., were also ably presented.

The association is in a prosperous financial condition, the treasurer's report showing all bills paid and a balance in cash, bonds and other assets of nearly $20,000 on hand.

Store Window Washing.

The following article by Prof. Wilbur L. Scoville, recently published in the American Druggist, contains practical suggestions which will be interesting to our readers:

WHAT the eye is to the face the window is to the store, and if the face or the store is to be attractive the eye or the window must be bright. To secure this effect the plate glass, costing its scores or even hundreds of dollars, has entirely superseded the old window glass, costing as many cents. One is no more transparent than the other, but one possesses a cleanness and a luster which was formerly lacking, and that is worth the added cost.

Still the problem is not yet wholly solved, and the weekly window cleaning is usually a matter which is dreaded. So simple an operation is it that it is intrusted to the greenest tyro, yet so difficult of perfection that the most expert would hesitate to claim its attainment.

F. Foerster, a German chemist, has done a large amount of careful experimenting during the past five years, to ascertain the exact vulnerability of different kinds of glass under different conditions. His conclusions, which are very interesting, have been made upon plate and window glass, as well as glass for chemical ware.

In a series of experiments upon six different kinds of plate glass, Foerster found that at 20 degrees C. pure water dissolved 1-65 grain to 1-11 grain of glass per 15.5 square inches (100 square c.m.), while a 1 per cent. solution of sulphuric acid dissolved 1-325 to 1-54 grain, 1 per cent. nitric acid dissolved 1-90 to 1-35 grain, 1 per cent. hydrochloric acid dissolved 1-325 to 1-40 grain, and 1 per cent. acetic acid 1-325 to 1-58 grain, each per 15.5 square inches of glass.

In a series of elaborate tables he has demonstrated the action of different strength solutions of acids and of water upon glasses of different compositions, and under different conditions of time, temperature, &c., but the above facts are sufficient for our purpose.

Now for the application of the facts. In window washing the first consideration is to remove the dirt, and the second to polish the glass. From a scientific point of view, these two are antagonistic. One aims to remove matter, the other to prevent the removal of matter. But, since the matter in consideration is not the same in each case, the problem is easily solved by keeping the proper sequence.

For the removal of dirt a weak alkali is the most generally efficient. It is to the liberation of alkali, by the decomposition of soap when dissolved in water, that the detergent properties of soap are, in part, due.

Glass is undoubtedly more easily cleaned by the occasional use of weak alkali than by pure water, though the latter is both sufficient and efficient if used frequently enough. Since ammonia has less action on glass than soda or potash, it is to be preferred, and, further, the water should not be hot. But, at best, the alkali will attack the glass, suspend some of the silica, and cause the dreaded streakedness.

Then, to correct this, after the removal of the dirt, an application of weak acid is desirable. Either hydro-

chloric or acetic acid is to be preferred here, on account of their volatility and absence of corrosive properties, and hydrochloric acid has the advantage in point of cost.

Then the sequence is, first an alkali to remove the dirt, and then an acid to polish the glass. If to these we add another factor, a polishing agent in the shape of some substance which will produce a mild friction without scratching, we have combined all the virtues of the commercial preparations for this purpose without their defects and with an added virtue.

I would recommend the following procedure: 1, Wash the glass in the usual manner with water containing about ½ ounce of concentrated ammonia water to a pailful of water—not more, for fear of removing the paint or varnish from the wood work.

Then, while the glass is wet, and without rinsing, go over the entire surface with a weak solution of hydrochloric acid, prepared by adding to a pailful of fresh water 2 or 3 ounces of strong muriatic acid. This neutralizes the ammonia and the alkali in the glass, and forms some soluble chlorides which aid in the polishing. Finally, dry and polish with a clean cloth.

The acid will have no ill effects upon paint or varnish upon the window frames, nor even upon unpainted wood work.

If metal window frames hold the glass the acid is liable to attack these, and should be avoided or used cautiously. A weaker acid would be advisable in this case.

Some have tried this plan and are pleased with the result. They think that the time taken to go over the glass with two successive waters is more than compensated in the saving of time in the drying and polishing, and then the window is brighter.

But if you wash windows so frequently that they do not get really dirty, the alkaline water might be omitted, and you may be pleased with the result if the hydrochloric solution is used in place of pure water. The addition of a little salt to this might prove a further pleasure.

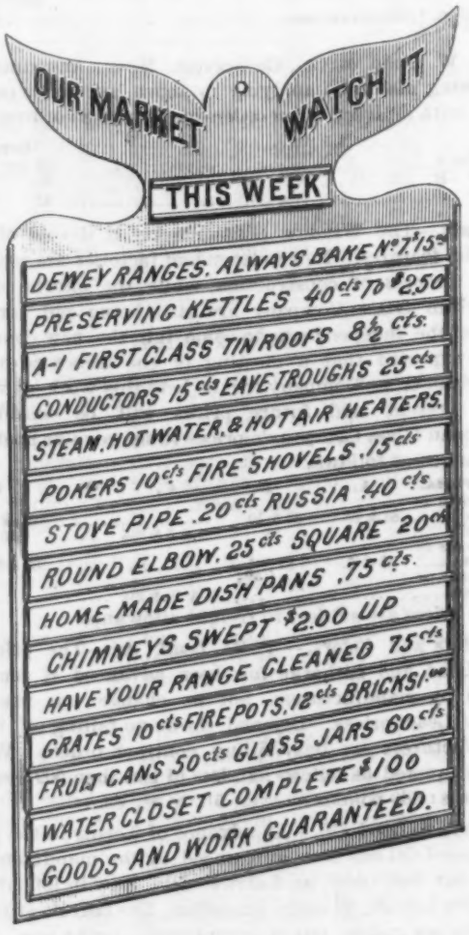
A Trade Catcher.

BY SHOP KEEPER.

THE best way to sell goods is in some way to attract the attention of the public to them, whether the goods are of special character or standard goods in every day use. I have devised a scheme which has brought me a considerable trade from people who ordinarily deal with my competitors in town. A general view of my market quotation board is shown herewith. The board is made of galvanized sheet iron and stands 4 feet high. It is made of 30-inch iron and has a ¼-inch rod or wire running down one side, across the bottom and up the other side, to make it stiff. The wings at the top are stiffened by soldering a piece of sheet iron bent in the form of an angle on the back. The words "Our Market" and "Watch It" are painted on the sheet iron.

Just below them I have arranged to change the card by bending a piece of tin so as to form an edge ¼ inch wide at top and bottom. This tin is wide enough to leave a 2½-inch open space. Then by taking a piece of cardboard or stiff paper 2⅛ inches wide and sliding it into the groove made by the two edges I still have 2½ inches of space, on which lettering can be readily seen. On this space I sometimes have "To-day's Prices," "Will Sell To-morrow" or various other short notices. Below I have grooves made so as to expose 1½-inch strips of cardboard. By taking a piece of tin 2½ inches wide and folding a ¼-inch edge on the tin folder, and using strips of tin 28 inches long and soldering them to the sheet iron, I have a slot in which a piece of stiff paper 1⅞ inches wide and 28 inches long may be inserted so as to expose a space 1½ inches high for lettering. This allows from 18 to 28 letters to be used, according to their size. Sometimes I mark my cardboard signs with a marking brush, and sometimes with a stencil which I have for the purpose. I have varied the colors of the paper, and also the colors of the marking ink, using it with good effect. If the board is made 4 feet high there will be room for 15 of these slots. After soldering the first one in place, being careful to have it true on the board, it is a simple matter to solder the others on.

I have given in the sketch some idea of the goods which I handle and sell and the use which I make of the board for advertising different lines of goods at seasonable times. It is a simple matter when any new line comes in, or any old shop keepers are to be moved, to prepare a card and push it in one of the slots. I usually set this card in one of my windows or out in front of my place, sometimes with some of the goods around it. If I am making a display of a Range and set of Trimmings in a window, I put the signboard outside in good weather, so that they may help each other in attracting the attention of the passer by. Sometimes my signboard says nothing of prices, but asks questions like the following: "Does your roof leak?" "Is your Furnace working all right?" "Does your Range bake?" "Is your plumbing in good order?" "Is the Safety Valve of your Boiler stuck?" Such questions are liable to make people investigate their belongings and see if they are in good repair or need attention. During the recent war I have occasionally used my board to give a little war news. Anybody running a tin shop can readily make one of the boards, and if a varied line of goods are carried can judge whether or not they can use it to advantage. The board should be changed often, and when there is good business it should be kept out of sight, so that it will attract attention each time it appears. I made mine of continual interest by withdrawing it and then setting it out with new suggestions and no prices, and again with all prices and no hints. I find a good deal of pleasure in making the people follow the path in buying that my market board points out, though it takes some care and thought to accomplish it.—*The Metal Worker.*


OUR MARKET
WATCH IT
THIS WEEK
DEWEY RANGES. ALWAYS BAKE
PRESERVING KETTLES 40 cts TO $2.50
A-1 FIRST CLASS TIN ROOFS 8½ cts.
CONDUCTORS 15 cts EAVE TROUGHS 25 cts
STEAM, HOT WATER, & HOT AIR HEATERS.
POKERS 10 cts FIRE SHOVELS .15 cts
STOVE PIPE .20 cts RUSSIA .40 cts
ROUND ELBOW. 25 cts SQUARE 20 cts
HOME MADE DISH PANS .75 cts.
CHIMNEYS SWEPT $2.00 UP
HAVE YOUR RANGE CLEANED 75 cts
GRATES 10 cts FIRE POTS. 12 cts BRICKS!
FRUIT CANS 50 cts GLASS JARS 60 cts
WATER CLOSET COMPLETE $100
GOODS AND WORK GUARANTEED.

A Trade Catcher.

Southern Hardware Jobbers' Association.

As previously announced, the ninth annual convention of the Southern Hardware Jobbers' Association will be held at Atlantic City, N. J., on June 14, 15 and 16 next. Atlantic City was chosen this year for the reason that it suited all interests best. The Islesworth Hotel has been selected for the headquarters of the association, and a rate of $2.50 without and $3.50 with bath has been granted, which applies to all persons who attend the convention. Each morning session and the afternoon session of the 16th will be devoted to joint sessions of the jobbers, manufacturers and their representatives. The other sessions will be of an executive character. Special passenger rates will be arranged for the occasion, the particulars of which will be given out at a later date.

The association extends a cordial invitation to each and every interested manufacturer and their representatives, throughout the United States, to attend the convention, as the programme this year will be arranged with a view of benefiting the manufacturers perhaps equally as much as the jobbers. The Hardware jobbers of all sections and their traveling salesmen will also receive a hearty welcome, and are specially invited to meet with the association.

Trade Items.

L. & I. J. WHITE COMPANY, Buffalo, N. Y., whose New York office has been at 48 Centre street, have moved across the street to No. 45, into a new building just completed, which has a frontage on both Centre street and New Elm street, recently cut through. This old established concern manufacture Machine Knives and Edge Tools for carpenters, coopers, shipbuilders, butchers, &c.

CHARLES A. BURDITT of Burditt & Williams, Boston, sailed for Europe, April 15. Mr. Burditt will probably remain abroad for some time.

ALFORD & BERKELE COMPANY and the Avery Sewing Machine Agency, formerly at 77 Chambers street, whose interests are identical, have moved to 98 Chambers street, New York.

SMITH & HEMENWAY COMPANY, 20 Warren street, New York (296 Broadway after May 1) have been appointed the sole representatives of Joh. Engstrom, Sweden, for the sale of his Razors and Knives in the United States. This company and their predecessors have long handled the goods, but now control them here entirely.

THE FRASSE COMPANY, 19 Warren street, New York, will on or about May 1 move to 38 Cortlandt street, between Church and Greenwich streets, where they will have much larger quarters. At the new address they will have the street floor and basement. This business was originally established by Henry F. Frasse in 1803, and for half a century was on what is now Park Row, near Chambers street, moving to Warren street six or seven years ago. The company deal in Stubbs' Tools and Files, Music Wire, Bicycle Repair Machinery, and a general line of Factory Supplies, Machinists' Tools, &c. The company were incorporated under the present name in 1892. Their new location will bring them into closer relation with the machinery trade, and will enable them to carry a larger line of Machinery and Tools.

THE UNITED STATES NET & TWINE COMPANY, 316 Broadway, New York, have discontinued their store at the above address and removed their office to 26 Broadway, in the Standard Oil Building.

THE STANDARD SCALE & SUPPLY COMPANY, Limited, Pittsburgh, Pa., manufacturers of the Standard Scales, have removed to a larger warehouse, situated at 211 Wood street and 242-244 Third avenue, Pittsburgh. This removal into larger quarters has been made necessary by the increasing business of this concern.

CHARLES L. HILL, for the past eight years secretary and a director of the Bridgeport Chain Company, Bridgeport, Conn., has resigned.

E. J. MOORE, representing the Charter Oak Stove & Range Company, and the Standard Stamping Company of St. Louis, will occupy desk and sample room at Room 409 Northwestern Building, Minneapolis, Minn. Mr. Moore has been connected with the Charter Oak Company for the past 19 years.

HUMASON & BECKLEY MFG. COMPANY, New Britain, Conn., advise us that the report that they were about to discontinue their New York office is without foundation. In order to save rehandling of goods they will in the future carry no stock in New York, but all orders, no matter how small, will be promptly filled and customers given every attention at their old stand, 80 Chambers street.

As an evidence of the friendly feeling prevailing among the jobbing houses of San Francisco it is worth noting that upon learning of the recent destructive fire in the establishment of Miller, Sloss & Scott, Dunham, Carrigan & Hayden Company offered to supply them with goods to meet all orders received.

ANNOUNCEMENT is made by the American Steel & Wire Company, under date, Worcester, Mass., April 1, 1899, to the effect that the Washburn & Moen Mfg. Company and the Worcester Wire Company having been purchased by the American Steel & Wire Company, the business will from that date be conducted in the name of the American Steel & Wire Company, the mills of that company, at Worcester, being known as the works of the Washburn & Moen department. To facilitate business and for the convenience of the trade the manufacture and sale of products peculiar to the Washburn & Moen department, and manufactured at no other mill of the American Steel & Wire Company, will be directed from the Worcester office. All communications regarding these products should be addressed to the American Steel & Wire Company, Washburn & Moen Department, at Worcester, Mass., or to the Boston, New York, Philadelphia or Pittsburgh offices. The special products of this department are as follows: Electrical Wires of all kinds, including Bare and Insulated, Copper Wires and Cables, Telephone and Telegraph Wires, Rail Bonds, Signal, Strand, &c.; Flat Wires and Flat Springs, Furniture, Spiral and Special Springs, Wire Ropes, Cables, Clothes Lines and Strands, and special Wires in large variety.

ON January 3 last more than 50 salesmen of Hibbard, Spencer, Bartlett & Co. of Chicago visited the works of the Peters Cartridge Company and the King Powder Company, Cincinnati, Ohio. A special telegraphic report of this event appeared in *The Iron Age* at that time. The salesmen as well as their employers were so highly pleased with the results of this personal observation of the processes of making Shells and Cartridges that the corporation have from time to time sent others of their salesmen, who for various reasons could not come with the "boys" in January. On Tuesday, April 13, another group of salesmen made a special trip to Cincinnati, and were taken to the factories by J. H. McKibben, secretary of the two companies, and shown through the entire works, that they might see all the various processes from the raw brass and paper to the finished Cartridge and loaded Shell. The salesmen find that this knowledge of the processes of manufacture is of great service in selling the goods. They also, of course, saw the methods of testing, and helped test various styles of goods. All of the visitors have expressed great enthusiasm over the Peters ammunition, and also state that their sales for the year thus far are much larger than ever before for the same months.

At the recent annual banquet of the Tennessee Implement Company, Nashville, Tenn., held at the Tulane Hotel in that city, covers were laid for about 250 persons. The company had invited their customers in different States, and quite a number of them were present. Among the other guests was Governor Benton McMillin. Major John J. McCann acted as toastmaster, and among the speakers were Governor McMillin, Hon. J. M. Head, W. G. Sadler, President Center of the Tennessee Implement Company; Rev. J. H. McNeilly, Colonel Killebrew and Major A. W. Wills. The occasion was an unqualified success.

By a Special Notice in this issue it will be seen that the Eureka Cast Steel Works of Chester, Pa., are offered for sale. Some particulars in regard to the location and extent of the plant are given in the advertisement.

Oliver A. Sproal has purchased an interest in the business of the Fort Collins Hardware Company at Fort Collins, Col.

E. W. Beall has purchased the Hardware part of J. L. Beall's business at Greenville, Texas, the latter conducting the Implement and Machinery line.

New England Iron and Hardware Association.

THE regular monthly dinner of the New England Iron and Hardware Association, held at Young's Hotel, Boston, April 18, was enlivened by the presence of Charles Clark Adams of Sargent & Co., who had been especially invited to address them on the subject, "Some Experiences in England." Early in the present year Mr. Adams went abroad well armed with letters of introduction, and accompanied by gentlemen well known in London. While there he was for a time the guest of Richard Westacott, well known to the Hardware trade of Boston, who now is Vice-Consul-General at London under General Osbourne, also of Boston. Consequently he had exceptional opportunities for seeing English life and for observing their business methods.

Mr. Adams' address, which is printed in full below, was much enjoyed by the 37 members and guests present, and at its close he was given a hearty vote of thanks.

The usual business was attended to before Mr. Adams spoke, and at the close of his remarks the meeting adjourned.

With President Bangs at the head table were seated H. L. Doten, John T. Boyd, Henry L. Houghton, Oscar Sheppard and Samuel A. Bigelow. Among the visitors from out of town were G. N. Jacobi of Reading Hardware Company, and George C. Butts of Chelsea File Works.

President H. C. Bangs, in introducing Mr. Adams, referred to him as a charter member of the association, and one who was always ready to help in any way at any time, and who was held in high esteem by all. Mr. Adams' address was as follows:

C. C. Adams' Address.

It is needless for me to say that a visit to England and London is a pleasure which every American can look forward to, and I will not pretend to tell you gentlemen the story of all the sights seen or places visited in the short time of five weeks spent abroad. I visited many places our trade are familiar with, as Sheffield, Birmingham, Redditch and Wolverhampton.

HOW THE ENGLISH MAGNETIZE CUSTOMERS.

In Sheffield I visited the great works of Charles Cammel & Sons, where immense quantities of Rails, Guns and architectural steel are manufactured; and here I learned my first object lesson in British methods of doing business. The gentleman I was with had an order for several thousand tons of steel rails, and in America would be received in the open manner of receiving would-be customers, with cordiality, perhaps an invitation to lunch; but my friend was asked his business, whom he wanted to see. We were then ushered into a waiting room, and sat until a gentleman came in, who asked for details, listened to quotations of competing prices, and finally agreed to furnish price by letter the following day. We were then bowed out as ceremoniously as though we were visiting royalty itself.

ENTERTAINED BY AN ENGLISH MANUFACTURER.

I dined *en famille* with a prominent Cutlery maker, and was shown some very handsome estates belonging to great manufacturers whose names you are familiar with, as Jessop, Rodgers, Sanderson and others. These fine estates are built on the hights surrounding the city, the factories and laborers' homes lying in the hollow. I was shown over the Cutlery factory, and was interested in seeing the manufacture of Knives and Razors of every style. The factories are smaller shops by far than we see at home, but I noticed many old men who had been in the firm's employ a lifetime, and who appeared to be well thought of, they occupying places of trust. The city is filled with small shops, many firms being in a block, and I read the names of thrifty manufacturers who were well known in the markets of the world, and yet quite unknown in our American market.

BIRMINGHAM AS A MODEL IN MUNICIPAL GOVERNMENT.

Birmingham is another city filled with small factories of every description in our trade, although there are some great firms there, such as the Nettlefolds and others. The city itself is clean and bright, with crowded streets and an immense railway station, and it is said to be the model city of municipal government.

GOODS DISTRIBUTED LARGELY THROUGH FACTORS.

There are large factors both here and in Wolverhampton, where everything in Shelf Hardware is sampled and priced. These factors appear to do a very large amount of business in distributing the Shelf Hardware made in Great Britain, the small trade being almost solely through these factors, although there are some jobbers in London and Liverpool.

THE ANTIQUITY OF SOME FIRM NAMES.

A curious circumstance to me was the fact that in some of the well known manufactories of goods I never met a person bearing the name of the firms, as they are managed by other persons. The old families own a control or an interest in the factories, hence we can see the value these old firm names have in trade, as with us you know as a rule we will form a new firm every time a new partner enters a firm.

WOLVERHAMPTON AS A MANUFACTURING CENTRE.

Wolverhampton is also filled with Lock shops and some special goods. One of the largest factories in Great Britain has been located here for many years, their offices being on a narrow side street. One would never mistrust they sold goods all over the world in immense quantities.

AN INDISCRETION AND THE EFFECT.

The manager, or really the senior partner, gave me some suggestions as to selling American goods, although courteously telling me he could not do anything that way himself. I was shown some sample cards here, and noticed a Can Opener, so asked the price. It was about $3.50 per gross in American money. I told them we sold them in New York for $2 per gross, and the samples were abruptly closed, and I was hardly treated civilly while waiting for my friend to finish his business.

There is an old church here, St. Peter's, built in 994. We stayed over night in a tavern, the Star and Garter, so old that a section is shown us as having entertained Charles I while he was making his unsuccessful attempt to escape in 1643.

REDDITCH AND ITS CHIEF INDUSTRIES.

I enjoyed a delightful day in Redditch, where I was shown the manufacture of Needles and Fish Hooks. This is a pretty brick town, built on hilly ground, and is entirely devoted to Needles and Fish Hooks. I was taken to the home of the owner and entertained at dinner. His daughter took me to walk after dinner, and I was enabled to taste of some delightful English hospitality and home life—which one must enjoy to fully realize the charm of England and English life.

THE RAMIFICATIONS OF BRITISH EXPORTS.

In visiting these places one also realizes the great latitude of British trade. I saw or was told of orders to every known market of the world, these shipments going through the factors and commission houses spoken of.

BRITISH AND AMERICAN METHODS OF SELLING CONTRASTED.

In Liverpool I was introduced to prominent metal firms, shipping firms, commission firms, and all showed me the kindest attention, and permitted me also to get

an idea of how conservatively their business is done. No cutting of prices. If a broker could not make a price satisfactory to-day, he asked the privilege of trying again to-morrow, or pointed out why his price differed from a competitor, as to quality or size or pattern, and when I tell you some orders were for hundreds of pounds, you can readily see that my eyes were opened to the difference between British and American methods.

I was told by a buyer of 25 years' experience that in going among different factories there would be a variation of not more than 2½ per cent. in quotations for merchandise, therefore the orders were placed, as a rule, with the firm he liked the best, or had the most confidence in.

GERMAN VERSUS AMERICAN COMPETITION.

There was somewhat of a contempt on the part of the British merchants toward German competition, because of the quality of the latter makers' goods, especially in Tools, but with us Americans they are amazed. At the time I was there they had run up against American quotations on Nuts and Bolts, and I was told that large quantities of these goods had been sold in the British market at prices of from £2 to £3 below extreme British cost per ton. They said a cut of 5 per cent. would have sold a lot of goods, but when we made the difference as much as 12 and 20 per cent., they couldn't understand it, and thought we were foolish not to put it in our pockets.

HOW AMERICANS SELL GOODS.

They then said we sold them at these extreme prices and then went to their customers in foreign markets as far away as Africa and dumped down the goods to the colonists at the same low prices, until they had about concluded we ought to have the trade, for we had ruined it for everybody else. Of course, I did not tell them it was an American way to make goods and sell at cost or less for fear the other fellow would sell some, but I will ask you, gentlemen, if this is not a peculiarity of our hustling, nervous, and perhaps thoughtless way of doing business. It seems to me from all I have seen, and been told, that we must learn different and more conservative ways, or we shall spoil the trade of the entire world, so far as profits are concerned.

NOT GETTING OUR SHARE OF BRITISH TRADE.

Speaking of Shelf Hardware, I do not think we are selling great quantities of goods in the British market. I saw many stocks of Stanley Planes, Wire Coat and Hat Hooks, Wrought Steel Brackets, patent Boring Tools, cheap Can Openers, and other so-called Yankee Notions, but in several well equipped Hardware stores the percentage of American goods was very small. There are no such well fitted up stores as we have over there. The stores in London are rather dark, filled in front with Wire Netting and Galvanized Wire. If a dealer has six boxes of an item, he samples the entire lot and makes a show of them on his shelves. If one single item is sold, a parcel is untied, one taken out, then the box tied up again, which method we abandoned 25 years ago.

I noticed, however, that the stocks have very few light weight goods, as the goods are heavier and stronger, and do not cost much more at retail than ours do of similar lines. For instance, our light Wire Hooks of various kinds, such as Cup and Screw Hooks, would not be sold there, and even here many customers complain of them, but an excessive competition has literally driven the original weight out of our market. Of course, we have improved many goods by making them light and strong, but in our shelf goods I believe we have in many lines carried this light weight to an extreme.

THE WAY TO INCREASE OUR TRADE.

I do not feel at liberty to relate all I learned of the introduction of American goods in foreign markets, but will say this, I believe our American merchants and manufacturers will learn the ways and settle down to proper methods, sending out intelligent agents, learned in German, French and Spanish languages; that we shall seek to earn and keep a fair profit; to give the best of quality and patterns.

A FEW TIMELY HINTS.

We shall have to ascertain what is wanted, then furnish it, if there is a profit. Not try to pass anything that we think ought to sell; if we do the Germans and British will beat us out. The Germans to-day are probably the most energetic exporters in the world, considering all the details, and the British are watching them and getting ready to copy the good German methods, therefore the Americans must cease this hap-hazard system of business, and build up a sound, sensible method of getting and holding the markets, and in the future we ought to be the greatest exporters of manufactured goods in the world.

SOME INTERESTING FEATURES.

There is an excellent feeling toward Americans all over England, and I was shown delightful courtesies by everybody whom I came in contact with. Perhaps the most interesting feature noticed was the finish of the country, no poor roads, no piles of rubbish as I entered a town, handsome fields, walls and hedges. The houses of even the villages are built of brick or stone, and many streets of small towns are paved. The general cleanliness is noticeable, but I missed the fine trees we have so common to our farm houses and country homes, and the farms over there seemed barren and lonesome as compared with ours.

Why Rubber Goods Are Higher.

THERE is a general tendency toward higher prices for Rubber Goods, whether in the lines carried by Hardwaremen or in other lines. All prices announced are subject to change without notice, owing to the liability of the materials used in the Rubber industry to advance still further. Not only has the cost of crude Rubber been tending upward, almost without interruption, since the middle of 1895, but cotton duck, different grades of which are used in making Belting, Bicycle Tires, &c., has cost more of late, and also the chemicals used in "compounding" Rubber. Even the Rubber recovered from worn out goods, of which a large use is made, with good results, went up lately 25 to 50 per cent. Before this general advance in materials began the makers of Rubber Goods became agreed that they had pushed competition too far, and thus got prices too low; now that every material they use costs more, they have been gradually shortening their discounts, every one on his own account, until a considerably higher level has resulted.

Without doubt the higher cost of Crude Rubber has been due to the growing demands for it in manufacture, not only here but abroad. The enlarging use of Air Brake Hose on railways, Belting and Hose in mining operations, Belting for new grain elevators, Hose for new fire departments and for garden use in every town in which new water works are erected, to say nothing of tires of every sort and a thousand and one other uses for Rubber—all combine to demand this material faster than the sparse and indolent populations of certain remote tropical regions can be persuaded to bring it to market. The higher prices of the other materials used are only in line with the general advance which has accompanied the country's return to prosperity.

The increased prices of Rubber Goods can hardly be attributed to any of the consolidations which have taken place or have been attempted in the trade. The Rubber Goods Mfg. Company, incorporated in New Jersey in January with $50,000,000 capital authorized, to control the production of Belting, Hose, Packing, and the like, have not yet completed an organization, and could not, therefore, have done anything to affect prices. Up to date it is not even known what factories are to be in-

cluded in the consolidation. The term "Rubber Trust" is applied sometimes to the United States Rubber Company, who are in the Rubber Shoe branch alone, with an issue of capital to date of $47,191,500. Prices of Rubber footwear have gone up and down since the formation of this company in 1892, and an advance is expected on May 1, the beginning of a new business year.

The Rubber industry is so diversified that it is probable, instead of its ever being controlled by a single big company, that several companies will each control the trade in some particular department. A very successful combination in Clothes Wringers was effected in 1891, with $2,500,000 capital, and to this day the number of independent Wringer factories has not grown beyond the one which remained on the outside at the beginning. A year ago the leading Hard Rubber factories were consolidated, with $2,500,000 capital. Within a week the International Automobile & Vehicle Tire Company have been incorporated in New Jersey, with $3,000,000 capital, to control the manufacture of the solid vehicle tires which have become so common in recent years, and the use of which may be extended to a still greater extent if the automobile should make such progress as has been predicted. The last company alone plan to use $1,000,000 worth of Crude Rubber this year in a line in which no Rubber was used at all five years ago, and this is only one of many new uses for Rubber.

On the whole, while there is no prospect that Crude Rubber will be materially cheaper at any time soon, the field of competition in the Rubber manufacturing trade is too broad for prices to go higher than is necessary to afford a moderate profit on production. There are yet 60 or 70 factories in the United States producing such Rubber Goods as are handled by Hardwaremen, and if all of them should be absorbed by a "trust" this year, no doubt several new factories would be at work within 12 months.

Request for Catalogues, Quotations, &c.

GEORGE JOHNSON & CO., British Post Office, Constantinople, Turkey, are desirous of receiving catalogues, price-lists, &c., from manufacturers of Files, Saws, Chisels, Shovels and Machine Tools, who may be looking for trade in that part of the world.

Missouri Retail Hardware and Stove Dealers' Association.

THE retail Hardware dealers of Missouri have followed the example of their colleagues in many other States, and have taken the necessary steps toward effecting a State organization. They held a session of two days' duration at the Lindell Hotel, St. Louis, last week—namely, on Tuesday and Wednesday, the 11th and 12th inst.

The attendance was quite satisfactory, comparing favorably with first meetings of other State organizations. A much larger number would have been present but for the fact that it was held just at a time when the sudden advent of pleasant spring weather had caused much activity in the retail Hardware trade throughout the State. It is highly creditable to the interest of those who did attend that at such a time they would leave their stores and travel to a distant part of the State to pass two days in considering what could be done to improve the condition of the trade.

Hugh A. Cole of Council Bluffs, Iowa, president of the Iowa Retail Hardware Dealers' Association, and Mrs. Henrietta E. Kupper of Burlington, secretary of the same organization, were present at all the sessions, and assisted in the work of launching the new association.

The following is a list of the dealers in attendance, in some cases the names of the firms only being given and not the name of the person who represented the firm:

Dealers in Attendance.

J. W. Poland, Poland & Crouch, Carrollton.
E. Thomas, Trenton.
Frank Trau, Holstein.
W. & W. J. Rumpel, Weston.
Bethany Hardware Company, Bethany.
Parrish & Erickson Hardware Company, St. Joseph.
H. J. Dickbrader, Washington.
Cunningham & Hamel, De Soto.
Hoppe-Taylor Hardware Company, Chillicothe.
Wm. Sodemann, Concordia.
J. Vogt & Co., Concordia.
Norris Hardware Company, Kansas City.
Halyard Hardware Company, Joplin.
Samuel Ulen, Meller, Ulen & Carter, Dexter.
T. A. Medley, McElyea & Medley, Campbell.
M. C. Post, Brookfield.
G. A. Easterday, Easterday & Pemberton, Braymer.
W. E. Burghauser, W. E. Burghauser & Co., Fulton.
Wm. Kansteiner, Hannibal.
P. E. Harney, Joplin Hardware Company, Joplin.
Jas. T. Jackson, Tom Ray Company, Kansas City.
E. A. Demeter, Macon.
Ben Morris, Memphis.
L. D. Groom, Richland.
Wm. Potts, Salisbury.
J. F. Burge, St. James.
Frank T. Salomo, Salomo-Biedermann Hardware Company, St. Louis.
A. F. Geschwindner, St. Louis.
John F. Bannon & Co., 1804 Lafayette avenue, St. Louis.
John Schmitt, 2245 Benton street, St. Louis.
Emil Wachter & Son, 1402 South Broadway, St. Louis.
Steinmeyer Hardware Company, 3543 South Broadway, St. Louis.
Boehl Hardware Company, 3511 Gravois street, St. Louis.
A. H. Gruendler, 1018 Cass avenue, St. Louis.
H. W. Quernheim, Mound City Hardware Company, 113 North Eighth street, St. Louis.
F. A. Kansteiner, 1008 Market street, St. Louis.
Witte & Enright, St. Louis.
Chas. Wendemuth, 7805 Ivory avenue, St. Louis.
G. A. Pauly & Co., Twenty-ninth street and Cass avenue, St. Louis.
Charles Loepfe, St. Louis.
C. E. Koenig, 2420 South Broadway, St. Louis.
Von Der Au-Cluss Hardware & Cornice Company, 2349 South Broadway, St. Louis.
Fred. S. Bolte, Bolte Stove Company, 915 North Broadway, St. Louis.
R. L. Hixon, Hixon Hardware Company, Hannibal.
Joseph Nelson, Winfield.
Taylor Frier, Frier-Jacquim Hardware Company, Louisiana.
R. D. Quisenberry, Nauerth & Quisenberry, Slater.
C. P. Bodine, Shelbina.
J. B. Best, Best Bros. Hardware Company, Palmyra.
J. M. Kenyon, Maitland.
J. M. French, Skidmore.
L. K. Jones, E. Jones & Son, La Belle.
F. S. Briggs, E. Skeeves & Co., Neosho.
Ira L. Russell, D. C. Russell & Son, Troy.
Louis Hering, Jr., Blackburn.
Chas. L. Fisher, Fisher & Terrell, Fulton.
B. F. Naylor, B. F. Naylor Hardware & Furniture Company, Marshall.
I. D. Cotty, Cotty & Payne Hardware Company, Cameron.
John Reiss, 1432 Salisbury street, St. Louis.
Robert Griffith, Sedalia Hardware & Grocery Company, Sedalia.
E. C. McCarroll, Berhears & McCarroll, Vandalia.
Joseph Batta, Marceline.

OPENING OF THE CONVENTION.

The convention was called to order on Tuesday morning by J. W. Poland, Carrollton, who asked E. Thomas, Trenton, to read the proceedings of a preliminary meet-

ing of Hardware dealers held at Kansas City, February 15, of which they had been elected chairman and secretary, respectively. At that time it was decided to hold a meeting in St. Louis, and to issue a call to the dealers of the State urging them to attend for this purpose. After the reading of the call, H. W. Quernheim of St. Louis moved that the proceedings be approved, and that the convention should proceed to organize a State association.

After this motion was adopted another motion was presented by B. F. Naylor of Marshall for the appoint-

J. W. POLAND, President.

ment of a committee to prepare a constitution and by-laws. This motion was also approved, and the chair appointed the following: B. F. Naylor of Marshall, R. L. Hixon of Hannibal, M. C. Post of Brookfield, P. E. Harney of Joplin, G. F. Birney of St. James, J. M. Kenyon of Maitland, I. D. Cotty of Cameron and H. W. Quernheim of St. Louis.

Another motion, by Mr. Quernheim, was carried to add the chairman and secretary to this committee.

Address by Mr. Cole.

Mr. Poland introduced President Hugh A. Cole of the Iowa Retail Hardware Dealers' Association as a man who had just passed through the labor of organizing a successful State association and was therefore fitted to give them some suggestions relative to what should be done by the Missouri dealers. Mr. Cole made an interesting address in which he practically covered the ground taken in a paper prepared for this convention, and which will appear in a subsequent issue.

F. P. Haus' Remarks.

The chairman next called upon F. P. Haus of the Charter Oak Stove & Range Company of St. Louis, who said a few words in defense of the traveling man. Mr. Haus, who related several stories to emphasize his points, said that the traveling men would help the organization not because their hearts are touched, but because they have a selfish motive for it. The Hardwareman also has a selfish motive in doing business. It pays a man to be honest for policy's sake if not for principle. Travelers try to give merchants the best of it and in doing so sometimes run up against severe censure at the other end of the line.

John F. Bannon

of John F. Bannon & Co., St. Louis, was next called upon. Mr. Bannon referred to the necessity of Hardware organizations, which secured both gain and protection. Their success depended largely on the membership and the effectiveness of the work done. Manufacturers and jobbers should be asked to co-operate with the association. Every effort should be made to obtain new members, thus securing a firm footing for future work.

The remainder of the morning session was occupied in signing the roll of membership.

Constitution and By-Laws.

In the afternoon the report of the Committee on Constitution and By-Laws was read by the secretary. Some amendments were made in the draft presented by the committee, the most important being the injection of the word "Stove" in the name of the association. This was done because many exclusive Stove dealers proposed to become members and they desired to have the name of the association cover their business as well as that of Hardware dealers. The constitution and by-laws as finally approved are as follows:

CONSTITUTION.

ARTICLE I.—NAME AND OBJECT.

Section 1. The name of this association shall be the Missouri Retail Stove and Hardware Dealers' Association.

Sec. 2. The object of this association shall be to promote the interests of and secure the friendly co-operation of Hardware dealers.

ARTICLE II.

Section 1. Any person, firm or corporation in Missouri engaged in the business of selling Hardware, and known and recognized as a regular retail Stove and

E. THOMAS, Secretary.

Hardware dealer in good standing, may become a member of this association by subscribing to this constitution and paying the annual dues prescribed by the by-laws.

ARTICLE III —OFFICERS.

Section 1. The officers of this association shall be president, vice-president, secretary and treasurer, and nine members, no two of whom shall be chosen for the same Congressional district, who, with the president and vice-president, shall constitute an Executive Committee.

Sec. 2. The president, vice-president and Executive

Committee shall be elected annually by ballot, and shall hold office until their successors have been elected and qualify.

Sec. 3. The secretary and treasurer shall be appointed or removed by the Executive Committee. The treasurer shall receive and disburse the funds of the association under the direction of the Executive Committee, through a voucher signed by the president and secretary, keeping a careful account of the same. The secretary shall be under the direction of the Executive Committee and his or her duties shall be assigned by them.

Sec. 4. The Executive Committee shall fix the salary of the secretary, and require bonds from the treasurer and secretary in any amount they may deem sufficient, to be approved by the president of the association. The fee of the bond company to be paid by the association.

Sec. 5. In case of a vacancy in any of the offices of this association the same shall be filled by the Executive Committee until the next annual meeting. The Executive Committee shall perform the duties of an auditing committee, and examine the books of the treasurer and secretary and report their condition at the annual meeting of the association. A majority of the Executive Committee shall constitute a quorum for the transaction of business, either by meeting or correspondence.

ARTICLE IV.

Section 1. The regular meeting of the association shall be held annually on the first Tuesday of February, at such place as may be designated by the association at its previous annual meeting.

Sec. 2. The Executive Committee is subject to the call of the president.

Sec. 3. It shall be the duty of the president, or in case of his inability to serve of the vice-president, to exercise supervisory control over the affairs of the association, and preside at all meetings of the Executive Committee, and to carry out and enforce all measures adopted by the association calculated to improve the condition of the Stove and Hardware business.

Sec. 4. The president shall appoint for each county one member, whose duty shall be to obtain membership in this association and encourage the formation of local associations.

Sec. 5. The presiding officer shall appoint at the annual meeting a sergeant-at-arms.

Sec. 6. Amendments to the constitution and by-laws may be made at any regular meeting by a vote of at least two-thirds of the membership present.

Sec. 7. All traveling men of Missouri who are in full sympathy with this association are eligible as honorary members on payment of $3 for initiation fee and $2 per year thereafter, but have no right to vote.

BY-LAWS.

Article 1. The membership fee shall be $3 and the annual dues $2 for each year thereafter.

Art. 2. Twenty-five members shall constitute a quorum to transact business at any meeting.

Art. 3. Each firm shall have one vote at any meeting of the association.

Art. 4. All fees and dues must be paid before a person can be recognized as a member or become entitled to act in this association.

Art. 5. The sergeant-at-arms shall guard the door and see that none but members be admitted except by order of the presiding officer.

Art. 6. No malt or intoxicating liquors of any kind shall be served at any banquets given by or tendered the membership of the association at their annual conventions.

The convention proceeded to the nomination of president, and J. W. Poland was nominated. He declined the honor, but was unanimously elected, whereupon he made the following address:

President Poland's Address.

I assure you, gentlemen, that I thoroughly appreciate the confidence you have reposed in me. I further assure you I was just as sincere in asking you to place some one else in this responsible position as you are in your selection. I realize that there will be a vast amount of hard work placed upon the shoulders of the executive officers of this association, and if the association is to prosper it will be necessary for the officers to use good judgment in the execution of the work. I have had this question of organization on my mind for something like five years or more. I am convinced that we must be temperate in the management of our business and have some consideration for the opinions of the men with whom we come in contact, who have different views from us in the method of doing business; they have some rights in the premises as well as we and we want to come to an equitable understanding of these premises. We should have no war to wage upon the manufacturers in St. Louis or anywhere in this country. It is not wise from a business standpoint. We cannot afford it. We cannot get along without them.

I want to say a few words in regard to our neighbor across the way. I want you to get acquainted with the fellow across the street. When we are not acquainted we allow ourselves to believe things that we ought not to believe. We ought to have more confidence in our fellow Hardwareman; we ought to consider him as honest as we are. A gentleman came to me the other day and was talking to me about a man in another line of business, about how disreputable he was, and that he could not do anything that was honorable, but I told him that others might have a good opinion of him. That is the way it goes; one man will say that A is not a man to be trusted in business, but that B is a straightforward business man and can be trusted in every way; then on the other hand along will come a man who will say that A is an honest, fair business man, and has the confidence of everybody with whom he deals. A man may say, this man Poland, you can't bank on him, he will not do to tie to. This disposition and spirit ought to be done away with.

We want to get nearer to each other, not merely in prices, but in better feeling. We should cultivate a more friendly feeling with the dealers throughout the country, and so, gentlemen, when we get home let us go over and see the other fellow and talk to him and if he is not with us try and get him to come with us and we will all be benefited by so doing.

Vice-President Harney.

The nominations for vice-president were more numerous, the candidates named being as follows: P. E. Harney of Joplin, R. L. Hixon of Hannibal and H. W. Quernheim of St. Louis. The second ballot resulted in the election of Mr. Harney.

Executive Committee.

On motion of Mr. Thomas, the chair was instructed to appoint a committee, consisting of one from each Congressional district, to select the nine members to constitute the Executive Committee. He appointed the following: C. P. Bodine of Shelbina, E. Thomas of Trenton, J. M. Kenyon of Maitland, B. F. Naylor of Marshall, J. F. Burge of St. James, Charles L. Fisher of Fulton, Ira L. Russell of Troy, C. E. Koenig, F. A. Kansteiner and H. W. Quernheim of St. Louis, and P. E. Harney of Joplin. They presented the following list to the convention and they were accordingly unanimously elected to serve as the Executive Committee: E. A. Demeter of Macon, I. D. Cotty of Cameron, J. M. Kenyon of Maitland, Louis Hering, Jr., of Blackburn, L. D. Groom of Richland, W. E. Burghauser of Fulton, Taylor Frier of Louisiana, H. G. Koenig of St. Louis, H. W. Quernheim of St. Louis.

QUESTION BOX.

The next order of business was the opening of the Question Box, and the following questions were read and discussed:

Can retailers in adjoining towns or competitors in the same town profitably combine in making carload shipments?

L. D. Groom of Richland: That question is easy to answer under the present system of freight classification. Out on the 'Frisco road we have a classification that admits Hardware and implements of all kinds. Under the present classification in force we can combine and save money, in fact, quite a good per cent., by shipping full cars together and by paying switch fees. On

our road the charge for switching is $5. Suppose I ship a carload of Iron and Wood Work from St. Louis. The carload rate is 22 cents per 100 and the local rate is 30 cents per 100. We may ship 30,000 pounds, and there being a difference of 8 cents per hundred, there would be a saving of about $24 on a car, less the $5 for switching. so that there was a saving of $19 on that one car. In many other lines of goods the same saving can be made. We have a town of about 6000 inhabitants and we have two Hardware stores that carry a good line of goods. My competitor is a good careful business man and a hustler. It keeps me busy to keep up with him. We agree and get along very nicely and we often combine in the matter of saving freight, but not as often as we ought, for the reason that each one seeks an advantage in prices, &c. We have saved some money by joining together. I believe it is economy to do that, especially with small dealers. For instance, a little Wagon dealer 14 miles below me gets Wagons every spring and fall; he cannot afford to buy a carload of Wagons, and when I am shipping a carload I frequently drop him off five or six and he pays the switch charges. Of course, practically speaking, this is not business, because I could use the Wagons, but it encourages him to hold up the price, and makes him think he is in the business. If he can't buy a carload of Wagons at one time he is willing to keep up the price of Wagons.

Is it business to trust a man for goods whom you would refuse to loan the same amount in cash?

J. B. Best of Palmyra: I emphatically say no. If you will not lend a man money, you ought not sell that man goods on credit.

Mr. Steinmeyer of St. Louis: No, sir, it is not business.

The Chairman: I think there is another side to this question. There would probably be no profit in loaning a man $5, but if you were to sell him $5 worth of goods. there would probably be a dollar profit in it, and it might be worth a man's while to take the chances.

Ben. Morris of Memphis: I have done a pretty large credit business and have lost very little. I think there is quite a difference between loaning a man $5 and selling him $5 worth of goods on credit, and the difference is in favor of selling the goods.

Louis Hering, Jr., of Blackburn: When you loan a man money, say $5, you take the chances of his being honest and worth the money. The banks and financiers of this country do business on the principle that a good man can get money at 3 and 4 per cent. rates, and others have to pay 8, 10 and 12. If a man was absolutely safe he would be foolish to pay 8 or 10 per cent. for money. The fact is he would not have to pay that, for the reason that he could get it for less. I think the most of us make sales to the amount of $5 or even more when we would not loan the customer that sum in cash, because very often it may be a piece of goods that if not sold soon will become unsalable, and we take the chances on getting paid for the goods.

A. H. Gruendler of St. Louis: If I would not trust a man for $5 in cash it shows that the man is not worthy of credit and naturally I would not like to give him goods for that reason.

H. A. Cole of Council Bluffs, Iowa: Suppose you had a Steel Range to sell and some young man and his wife came in and wanted to buy a Range and wanted to pay $10 down and $5 a month and to secure the deferred payments would give you a mortgage on the range, something like the time payment houses do business; say for instance the man is not worth anything, the question is can't you secure yourself in this way?

J. B. Best of Palmyra: No, there is no business about it in my opinion. Our firm sell as many goods on credit as any retail firm in Missouri. We have been in business in our little town for a long time. I was born there in a log cabin, and have been there ever since. We are in a farming community. There are no factories. We depend altogether upon the farmers, except, of course, the little town trade we have, and we have sold a great many goods on credit. We have dealt with our customers on the theory that they were honest, and in most cases they are honest. The proposition is a business proposition, and I do not see how you can take any other view of it. Merchandise, *per se*, is nothing but money in another shape, and if you cannot trust a man with a sum of money it is not business to trust him with that amount of money in goods; of course if you take a lien on the Range you have got security and you do not trust the man at all—you trust the Range. That is a different case altogether. If any of us should go to any of the banks here we could get all the money we want if we have got good collateral to put up. In bank parlance they would call that accommodation, but they charge us for that accommodation. Merchandise is nothing more nor less than money in a different shape, and if you have a lien on the Stove and the party does not pay, you take the Stove, and you don't trust the man at all—you trust the Stove. I might be called home suddenly and probably might not have money sufficient to pay my railroad fare, and I would step up to one of you gentlemen and ask you to let me have a few dollars, and he gives it to me, or rather loans it to me, because he knows I will pay it back. I venture to say there is not a Stove dealer in this town that would not sell a man as many dollars' worth as he would loan him. When you loan a man a five-dollar bill or a ten-dollar bill it is just so much money, and when you sell him a Stove on credit it is just the price of the Stove loaned him, less the profit, as Stoves are not all profit.

P. E. Harney of Joplin: Of course, if I thought a man dishonest I would just as soon loan him $5 in cash as to sell him $5 worth of goods, for if I thought him dishonest I would not do either.

Should a dealer borrow money if necessary to take cash discounts?

B. F. Naylor of Marshall: If a dealer in purchasing goods has not the money to discount his bills, but if he has credit sufficient to borrow the money and the discount exceeds the interest he would have to pay, it seems to me the proper course to pursue. I take it for granted that every man is in business for the profit in it. What I am interested in, and what I take it every other man is interested in, is the difference between what one has to pay for his goods and what he sells them for. If he discounts his bills he makes the man or firm he buys of anxious to sell to him, and he gets his goods at the very lowest market prices, and he is thereby able to sell at a better profit.

Are counters desirable or necessary in Hardware stores?

Chas. L. Fisher of Fulton: I am running a Hardware, Stove and Tinware store all in the same room. On one side of the room I have counters and under the counters I have Nail bins, and on the top of these counters I have showcases in which I keep my Cutlery. It seems to me that a Hardwareman could hardly get along without counters. I have two rows of Stoves with a counter on the other side. I use the Cook Stoves for counters. Then I have gas pipe extending from one end of the house to the other, at a considerable hight from the floor, upon which I hang articles; of course it is a good deal of trouble to keep them clean, but the better class of goods are wrapped in paper. I have three counters each 6 feet long.

H. A. Cole: I have but one counter, which is about 10 or 11 feet long, but used to have counters running on both sides of the store. Under the counter is a shelf about 6 inches wide. The Stove platforms are about a foot high. I have two Stove platforms, and they would run the full length of the store if it was not for the fact that the elevator is located right in the middle of the store. These two Stove platforms are wide enough to accommodate two rows, which gives four rows the whole length of the store, used either for Stoves or Refrigerators, or other heavy goods. These platforms are

built high enough for Nail bins under them. In the front of our store we have a space 10 feet wide and we run a Cutlery showcase right across in front of the door, and every customer that comes in is looking right square at the Cutlery, and we have the very nicest possible Cutlery exhibit there.

How often should show windows be changed, and should the goods in the windows be marked in plain figures?

John F. Bannon of St. Louis: I have been for 15 years in one of the nicest neighborhoods in this city, in the Lafayette Park district, and I have found it very profitable to change my windows at least twice a week, putting something new in them every time. I believe in making a display of the very finest Stove in the window and all the necessary fixtures that go with it; then if you have another window put a Gas or Gasoline Stove in it, with the necessary fixtures that go with it. Then if you have any fine Hardware put in some of that, changing the show windows at least twice a week and washing them at least twice a week. As to marking goods, I do not know that it would be considered of much benefit, for the reason that it is misleading in some respects, as a price may be marked that is a catch price and does not fairly represent what you have inside your store. It is a good idea to put some special article in the window, something that will attract attention. A friend of mine had an old Stove, a round Stove—it may be that some of you have seen one of them; it traveled around on a wheel and was made 50 or 70 years ago—and I backed it up and put it in my window and it was astonishing how many people would come and ask what it was. It gives a great deal of pleasure to people to look at things of this kind.

A. H. Gruendler of St. Louis: I think the time and money expended in dressing windows twice a week would almost take all the profit off of the goods put in the window. I know it generally takes me a whole day with one of my men to clean the windows, and two men pretty near a full day to dress the windows, and to do that twice a week would take an enormous sum of money during the year. In regard to marking goods, I must say I do not do it myself, but I think that goods ought to be marked in plain figures. I think it often makes a sale. Oftentimes people passing along the street do not pay any attention to the goods or the prices, but once in a while they do need a little thing, a small thing like a Hammer, and it may be that they pass along and see the kind of Hammer they want marked 25 cents or 40 cents, and they think that is not much and they will take one along. Once in a while there may be a class of goods I have on hand and I put them in the show window and put the price on them, and in less than no time they are sold.

E. Thomas: This question of marking goods in plain figures or in characters depends upon the way in which a man does business. I believe that a man that has but one price ought to mark his goods in plain figures, but I believe that a man who changes his prices should mark his goods in characters. The reason the department stores and racket stores mark their goods in plain figures is because if you go and ask them their price they tell you, and if you ask for credit they tell you they sell only for cash, and the man goes there with the understanding that he pays the price marked on the goods and pays the cash for them. I believe if you have but one price then it is best to mark in plain figures.

On Wednesday morning, the president and vice-president being in session with the Executive Committee, B. F. Naylor occupied the chair, and the Question Box was opened and the following questions discussed:

What is the best scheme for a Hardware price book, and how and when should it be marked up?

H. A. Cole: It has been my experience that a price book is absolutely necessary to the retail dealer. A great many business men claim that it is too much trouble and takes too much time to keep up a price book and make the necessary changes. I think that every retail dealer should keep a price book, and keep the prices changed according to the market, so that when the salesman calls around you can quote him prices and he will be glad to come to your terms. I know of one instance where a salesman came in and quoted me Wire at 70 and 5 off, and as I had an entry in my book that I could get it for 75 off from a local dealer I did not buy.

C. R. Hendricks of St. Louis: As a buyer for a jobbing house, I will give you my experience in keeping a price book. Every morning we make the changes that are necessary. In keeping a price book it is necessary that the prices be made in characters that are familiar to you only. Then when a salesman comes in and sees me refer to my price book he knows that I have prices, and treats me better than he would otherwise. In keeping a price book you can quote prices on goods that you do not keep in stock, and in this way you make sales that you cannot make without keeping a price book. I find that in every town of from 1500 to 15,000 inhabitants people will come in and call for goods that you do not have in stock. By keeping a price book you can quote them prices, and in this way secure sales that could not be effected without them.

Does it pay best to advertise by circulars or by display advertising or by local newspaper advertisements?

F. A. Kansteiner of St. Louis: My experience is that local advertising is the best mode of advertising. We want to sell something to the people, and in advertising what we want to do is to call the attention of the people to the fact that we are selling certain kinds of goods, and in doing this I think it will be the best way to advertise by locals.

Mr. Halyard of Joplin: A good display advertisement kept constantly in the paper will attract more attention, and be seen more than a local. The best way to get up a good display advertisement is to put it in large plain letters, and in a conspicuous place. You can also put up a large sign, not an ordinary fence sign of a few words, but a good large sign in large letters, showing what you have. If a person's business is large enough to keep a solicitor going out he will this way keep his name before the public better than any other way, and better than any advertisement in the newspapers. I think it is very necessary to keep your name before the public. I do not think it is necessary to change a display advertisement very often. What you want to do is to get your name before the public, tell them what kind of business you are in, what you have, what your general line is, and have it put in good heavy type. Make your advertisement familiar. Make it so that a person sees it and that they will see it whenever they read the paper. You want to get your name before the public so that they are impressed strongly enough that they will come around to you for the goods in your line. There are thousands of your customers that are sending thousands of dollars to catalogue houses, to people they never have seen, for goods they never saw, and take the chances of getting value received, and why is it that they are doing this? These catalogue houses advertise very extensively in magazines and periodicals. They will advertise a Stove of a certain size, a certain weight, and costing so much money. People are attracted by such advertising, and in this way they gain their trade. Isn't this the way that they are getting their power and advantage over us?

J. F. Burge of St. James: I handle my advertising in this way. I carry a local advertisement in the paper and change it every two or three days. Then I also carry a standing advertisement, and have that changed every three or four weeks, and especially as the seasons change. I sell a certain class of goods at one time and at another season I sell another class of goods. For instance, I would not be likely to advertise Gasoline Stoves in the winter time, nor a Heating Stove in the summer time. I call attention to the fact that I have certain goods in my possession, and that this class of goods is not sold by any other dealer.

F. S. Bolte of St. Louis: In advertising you should advertise so as to attract the attention of the reader and arouse his curiosity so that he will come around and see what kind of goods you have for sale. Be sure and advertise only that which you can sell as advertised. I find that by advertising good displays in the windows we will get more satisfaction than in any other way, and this should be changed every two or three weeks. And sometimes it is advisable to attach prices in plain figures. I have had some experience in the advertising business for various houses that have made a minute canvass of this matter of advertising, and I had to do the work myself. A great many of the customers whom I met did not think it was necessary or that it would pay to advertise in the local newspapers, for the reason that people would not read them. You yourself will not read the advertisements. There is fully one-fourth of the retail dealers in the country that as soon as they receive a paper will simply glance at it and throw it away. The next way to advertise is by circulars sent out by jobbing houses to the trade. When a customer comes in, hand him one of these, tell him to take it home and read it, and nearly all will take these circulars home and read them, come back and investigate. If you are going to advertise in the papers make your advertisement so conspicuous that the first week it comes out everybody will see it. Make it as attractive as you can, so that they will be enough impressed to come and give you a call. Get up a good advertisement, but have it changed every two or three weeks. Now, does it pay to advertise testimonials? I think that it does. Last year we made a run on Bicycles, and we would advertise that a certain person bought a Bicycle and the next day some one would come in and would say I see Mr. So and So has bought a Bicycle of you, and we would also sell them one. In this way we made quite a run on Bicycles.

Mr. Halyard of Joplin: I have had quite a little experience in advertising, and I think every one should try to keep his name before the public, but do not have it in the same place every day. We used to go some on testimonials. Parties would come down to the store and say I see you sold such a party a certain article, and in this way we would effect another sale.

Bert Ball of St. Louis, a professional advertisement writer: Advertising is, perhaps, one of the greatest and most important features of business. In fact, I think that it is almost as important as buying. In advertising I think it is a good policy whenever you make an advertisement to be sure and bring your name before the public in such a way that they will not only read the advertisement, but they will come around and see you. In the first place never do advertising that is a fake—that is, never advertise to sell an article for a certain price and then when people come to buy you either sell them an inferior article or one at a superior price, or else you do not live up to the advertisement. Window displays are exactly in line, and when they are so arranged as to be attractive and neat they are more to you than any other kind of advertisement. Whenever you advertise in your window, advertise your goods that are in season. It is all right to have some goods advertised in this way while they are not in season, and to say that certain things can be had at our store in season and out of season. When you write up an advertisement you can write it so that the people will not only glance at it and be attracted, but so they will read it all the way through. In regard to the matter of testimonials, testimonials are all right. You may advertise testimonials from reputable people and they will help you. I do not think it would be profitable for a person living on the outskirts of the city to advertise in the papers to any great extent. I think it would be a better plan to become acquainted in your vicinity with all of the people for a space of six or eight blocks around.

Mr. Steinmeyer of St. Louis: Some time ago I advertised very extensively a certain Range, and I was told that I was the only person selling those Ranges in that locality. People would come to my store, get prices, but would not buy. I kept on advertising, got a very large V-shaped wagon and hired a driver, and had printed on the wagon in very large letters the name of the Ranges, then gave my address. Well, I could not understand why I did not sell more. After a time I learned that a neighbor was also handling the same Range, and that he was selling them at a lower price than I was, so he was the one who was being helped by my advertising.

Mr. Ball resumed: I think that it is a good idea to begin about a month ahead of the season and advertise very largely the goods that we will have for sale, and then follow this up until the season opens. Then when the season opens we will not have to advertise as much as if we had not done so before. The percentage of the gross sales of a store to be spent in advertising varies in different places. Some will spend one-half, others will spend almost all they make. It depends largely on competition. If the competition is pretty brisk and strong you have to spend a great deal more. If you have no competition you will not have to spend so much on advertising. But whenever you pay for advertising you ought to be able to tell the people something about yourself. There are a thousand plans that can be worked with very little expense. You can make the children of your town work for you like little tigers, and you can do a great many things that will give you columns of write-up in the local paper. Get a big crowd at your store and the newspaper will be glad to give you a column or more just to fill up the paper. I know this, for I have been a newspaper man myself.

Is furniture a desirable adjunct to Hardware in country towns?

B. F. Naylor of Marshall: I can speak on this subject, as I handle furniture with Hardware in a town of 6000 inhabitants. I have been engaged in this business for perhaps 12 years, and I find it is a very good combination, and that they work very well together. You find, particularly in the country districts, that it is necessary to keep the articles that are called for by your customers, and the store that comes closest to accommodating them with what they want in the different lines. When parties come in that want to buy an outfit for housekeeping, of course they want a Cook Stove and the utensils that go with it, and then they pass to the furniture department, and if they find what they want you can sell them in all probability. As a general rule, if you can sell a customer the first article he calls for you have a customer, and you can fit him out in his whole line. Not only so, but when you find a man who is building a new house, who has been a housekeeper and is going to build, if you can secure an order of his contractor for his building, and you have the goods that he wants, you in all probability will be able to make a sale to him of all the articles he desires to purchase in the way of furnishing his house, and you generally hold him as a customer. We have a building, 48 x 100 feet. There is a partition wall about two-thirds of the way through the building, and it has two fronts. We have two stories, and two rooms in the upper story. One of the rooms we use for furniture and the other for Hardware.

Samuel Ulen of Dexter: Like the gentleman who has just preceded me, I have a Furniture and Hardware store, and I think the one of great help to the other. I carry Furniture and Stoves. We have no regular Furniture store in our town.

Is it practicable to sell Stoves on the installment plan?

H. A. Cole: I would say that it is. I think easy payment houses are making more money on them than anybody else. The retail dealers of Missouri can do it if they have capital enough. I would advise them to do it. They can make sure of their money by taking a mortgage on the Range or Stove. There are several sorts of competition that the retail Stove and Hardware dealer has to meet—namely, the department store, racket store, Range peddler, catalogue house, and the easy payment

house. The easy payment houses and the Range peddler are selling Stoves and Hardware on their own terms. We want to know if we can do that ourselves. I had a little experience in that. There are peddlers in the country, and in the town next to mine there is a time payment house that handle furniture on the installment plan, and we have to compete with them. I often sell on time, but I do just as I would with the Wagon business. I sell with a secured note and set a time for its payment, but I don't believe it would be any good in ordinary business.

Wm. Potts of Salisbury: Sometimes you may have to take your Stove back. How are you going to do this? If a dealer has sold the Stove on time payment the property belongs to the man he sold it to.

Mr. Cole: We sell a good deal on the installment plan, and it is very seldom we ever have any trouble getting a Stove back or getting the money for it when sold.

Taylor Frier of Louisiana: I believe that the size of the town will govern a good deal in regard to selling on installments. Quite often you will be compelled to take the Stove back. If you can take these Stoves to a second-hand dealer it is all right, but in a small place where there is no second-hand store it would be quite different and it would be very hard to dispose of the Stove, hence we do not attempt it.

Mr. Cole: I will just state on my own experience that we handle in our neighborhood Stoves and Ranges on the installment plan for good money, and we never had to resort to legal proceedings to get Stoves back. When we sell a Stove to a customer, we make it very plain that these Stoves are ours until paid for. We charge so much rental per month, and after a certain length of time, if the payments have been made, the Stove belongs to the other party.

How long should a dealer guarantee fire backs in Stoves?

Mr. Gruendler: I would say that if a customer don't ask for it, don't guarantee it at any time. If a customer asks for a guarantee for a single fire back, guarantee it for five years, but I would not guarantee it unless it was asked for.

Mr. Naylor: I would like to know the sentiments of Hardware dealers in guaranteeing goods generally. I think that it is better to do as little guaranteeing as possible, but I would like to have an expression of the different members on this question.

Mr. Wachter, St. Louis: We do not sell any Stoves, we sell Hardware and first-class Tools, and we guarantee our first-class Edge Tools. When a man asks us to guarantee any of our goods I tell him we will guarantee them and we will make the guarantee good provided the Tools have been properly used; but I don't give any guarantee unless it is asked for, and we make no guarantee except when the goods are guaranteed to us by the factory.

Mr. Rumple: As far as I am concerned with reference to this guaranteeing matter, I am not in favor of guaranteeing anything unless it is asked for, and then as little as possible. I found that there are people who will take advantage of the guarantee, and after you have made them a promise that you would give them a new Hatchet, or whatever you may have sold them, they will come back and insist on it even if the guarantee has not been broken in any way.

Mr. Potts, Salisbury: In regard to guaranteeing fire backs I will say that I have had a little experience in that matter, and I have learned to be cautious as to how and to whom I would make a guarantee, for the reason that some people who buy a Stove, if it is guaranteed, will use it very roughly. They will say, just let it go, it's guaranteed. If you give them a fire back you are very likely to have trouble with it afterward. I recollect now a party to whom I sold a Stove and at the end of three years he came back and said that the back was cracked and wanted me to make good the warrant. I made some inquiries about it and I found that while the back was not burned out yet it was cracked, and I think had been occasioned by the using of icy wood in the Stove, and they had burned out the center post, which was a very heavy one. It is my experience in selling Cutlery that if you are going to make any money out of it you must guarantee it. It is much easier, for instance, to sell a Pocket Knife for 75 cents with a guarantee than it is to sell one for 50 cents without it, and the same holds good with Razors and Scissors. Not long ago a man came to me with a pair of Scissors which he had bought over 12 years ago, and they were all spread apart, and I says, "What is the trouble?" "Well," he says, "they won't cut, and they were guaranteed." I says, "What have you been cutting with them?" And he said "Nothing," and I quizzed him a little and found out that he had been cutting heavy carpet rags and the blades were spread apart. I took the Shears and got them in shape and put them on the stone, sharpened them, and gave them back to him.

Mr. Cole: When you have had a customer bring back an article did you ever try to explain things to him in this way? In case it is a Hatchet or a Knife or a pair of Shears, or whatever the article might be, say to him, "Here, now, I will sell you this article at half price. It is a better article than the one you bought, and I will take the one you have brought back." I have adopted this plan in several instances and it has always worked very well and the customer has gone away pleased.

Mr. Potts: I will say in answer to Mr. Cole that I had a little experience similar to that last week. I sold a man a Hammer that I believed was a good Hammer; however, he brought it back. It seems that he had been trying to pull staples out of an old post. It appeared to be a little soft when he brought it back. He said he thought it was guaranteed. I studied over the matter a little while. He was a good customer, and I saw from his actions that if I did not do something I was going to make him angry, so I just got down another Hammer which I sold at 50 cents, and handed it to him and said, "Here, take this." He was going to leave the one he brought back, but I said to him, "Just take both of them."

Mr. Cole: Couldn't you have got a quarter out of him for the new Hammer and have kept the old one and used it around the store?

Mr. Potts: Well, I don't know. I sold him a 75-cent Hammer and I thought he might think that I was taking a little advantage of him. You see, in the country we haven't a very large floating class of customers, and we have to treat everybody very nice.

Do you sell seconds, and do you sell them as seconds or as firsts?

Mr. Koenig: In the past year we have handled quite a few seconds, being compelled to by competition from department stores, and I find there is just as large a profit in handling seconds as firsts. I don't believe that the country dealers find the competition to contend with that the dealers here in St. Louis do. I don't believe there are very many here who are compelled to sell a 2-quart Granite Bucket for 8 cents. This we are compelled to do by competition with department stores which are located in our vicinity.

Mr. Cole: There is no question in my mind but what the matter of competition in racket and department stores is the greatest trouble we have. The way I manage the matter is this: When a customer comes in and wants to buy these cheap goods I tell them frankly that they are not first-class goods and that I have other goods that are a great deal better, but for more money. I say to them that these goods will do very good service, but here is a better article, and then they can do as they please about purchasing.

Mr. Steinmeyer: I have been keeping a class of goods kept by a department store. If I see a department store advertising a Wringer for 98 cents I go and buy the Wringer, and I am satisfied if I get my money back. I sell a better Wringer, but, of course, it costs more money; but if a customer comes in and wants a

cheap article he can have it. I make nothing on it, but it satisfies them.

Mr. Koenig: I think something should be done in the way of compelling manufacturers to mark their goods so that we could tell with some certainty as to the class of goods we are purchasing.

The Chairman: We are coming to that. As soon as we can get 25 or 30 States organized, or possibly ten State organizations, then we will be able to do something in that respect.

Is it practicable and will it be received as a benefit to the retailer for the manufacturer of standard goods to establish a dead line of retail prices?

Mr. Koenig: The question of an established selling price has been agitated in St. Louis for some time. The retail Stove dealers of St. Louis formed an association to establish a price at which they could make a reasonable and just profit. A committee was appointed, of which I was the chairman, to corsult the manufacturers for the purpose of seeing if they could not maintain an established price. A man who had a little tinshop and kept two or three Stoves figured that all the Stoves he sold, if he received any price over and above what they cost him, he made a clear profit. He did not figure the cost of maintaining his business. When the manufacturers had this matter laid before them in but one instance did it receive a favorable reply. In St. Louis there are 300 dealers in Stoves, I suppose, but they have never yet been able to quote a price that would be strictly adhered to.

Are grocery stores handling our ware affecting our trade?

This brought out some discussion, the general drift of which showed that the grocery stores are also suffering from the competition of department stores and are trying to introduce other lines so as to make their trade more profitable.

Auditing Committee.

The Auditing Committee reported that the books and vouchers of the secretary and treasurer had been examined and found correct. The total receipts were $183, the disbursements $45.25 and the balance on hand was $137.75.

Executive Committee's Report.

The following report was made by the Executive Committee:

The Executive Committee met at 10 o'clock a.m., April 12, 1899. It was called to order by President Poland. The committee were all present. E. Thomas of Trenton was elected to fill the office of secretary and treasurer for the ensuing year. The committees for the ensuing year were appointed as follows:

Auditing Committee, C. E. Koenig of St. Louis, E. A. Demeter of Macon, Louis Hering, Jr., of Blackburn.

Committee on Grievances, B. F. Naylor of Marshall, R. L. Hixon of Hannibal and M. C. Post of Brookfield.

A committee of three were appointed to draft resolutions, as follows: H. W. Quernheim of St. Louis, Taylor Frier of Louisiana and J. M. Kenyon of Maitland.

It was decided to place the bond of the secretary and treasurer at $500.

RESOLUTIONS.

The Committee on Resolutions reported as follows:

Resolved, That we request the manufacturers and jobbers that they confine the sale of their wares to the regular dealers, that each and every member of this association use every possible effort to see that this request is complied with, that if any manufacturer or jobber furnish goods to any one not regularly engaged in the retail trade as defined in the constitution of this association, the dealers affected shall report the same to the Grievance Committee, with affidavits and other proper proof, who, after properly considering the same, shall instruct the secretary to correspond with the manufacturer or jobber and endeavor to adjust the matters, and in the event of a failure to so adjust a complaint where the evidence is conclusive, the facts in the case shall be presented to the members of the association.

Report Approved.

The report was received and the action of the committee was unanimously approved.

Other Resolutions.

Resolutions offered by various members were adopted, favoring the organization of a national retail Hardware dealers' association, tendering thanks to the trade press for the valuable assistance rendered in the organization of the Missouri Association, thanking H. A. Cole, president, and Mrs. Henrietta E. Kupper, secretary, of the Iowa Association, for valuable suggestions and assistance; also thanking the Lindell Hotel and the Interstate Merchants' Association of St. Louis for courtesies. By a special resolution the privileges of honorary membership were gratuitously conferred on J. W. Bowman of *Stoves and Hardware*, George W. Cope of *The Iron Age* and *The Metal Worker* and Daniel Stern of *The American Artisan*.

The city of St. Louis was chosen as the place of holding the next annual convention, no other locality being considered.

Invitations.

Invitations were extended to the members to visit the works of the Charter Oak Stove & Range Company, and to attend the regular meeting of the St. Louis Hardware Association on the evening of the 12th.

World's Fair.

A resolution was adopted, indorsing the project of a World's Fair in St. Louis in 1903.

Other Addresses.

Remarks were made by P. E. Harney on the general policy of Hardware dealers, and by F. P. Haus on the management of Stoves.

Incorporation.

The Executive Committee were instructed to inquire into the desirability of incorporating, and to take steps to do so if that seemed to be the proper course to pursue.

Papers Unread.

Interesting and thoughtful papers which had been prepared by H. A. Cole of Council Bluffs, Iowa, and C. W. Aldrich of Minneapolis, Minn., were not read for lack of time, but a resolution of thanks to the authors was passed, and they were ordered to be made part of the records. Mr. Cole's paper will be presented in a later issue.

A motion was passed authorizing traveling men to solicit members.

The convention duly adjourned.

Among those in attendance who are not dealers were the following:

A. G. Brower, manufacturer and dealer in Stove Repairs, 219 Locust street, St. Louis.

F. A. Spielman, with Buck's Stove & Range Company, St. Louis.

H. A. Spielman, with A. F. Shapleigh Hardware Company, St. Louis.

C. H. Bishop, manager St. Louis branch of C. Sidney Shepard & Co.

Bert Ball, writer and designer of advertising, St. Louis.

F. O. Headley, Indiana Stove Works, Evansville, Ind.

Emil J. Koch, International Steel Post Company, St. Louis.

John R. Goetz and Edward O'Dea, with Bridge & Beach Mfg. Company, St. Louis.

E. B. Drew, with E. E. Souther Iron Company, St. Louis.

J. W. Jacob, F. P. Haus, Leon Lou and C. H. Smith, with Charter Oak Stove & Range Company, St. Louis.

New England Hardware Dealers' Association.

THE regular monthly meeting of the New England Hardware Dealers' Association was held at the United States Hotel, Boston, Wednesday, April 12, at 5.15 P. M.

Attendance.

The meeting was well attended and much interest was developed on the subject of forming local associations to work in harmony with the central or parent association. A large proportion of those present were from adjoining towns and all were a unit in their expressions favoring the movement. The recently elected president, William D. Parlin, presided and delivered the following address at the close of the dinner:

President Parlin's Address.

In entering upon the duties of president of this association I wish first of all to thank you for the honor you have conferred upon me. I hope your confidence has not been misplaced. Your assurance of hearty co-operation in its duties and responsibilities has been given, and with that understanding I accept the office. Little can be accomplished without this co-operation. The association is organized for our mutual good. All of us must share its labors, or we fail to secure its best results.

We meet here to get acquainted with each other, to plan movements which shall help us in trade, to foster commercial integrity, to discourage excessive, unfair competition, stop jealousy and remove by concerted action all evils and customs among us that are against sound business principles. These are objects worthy of our great efforts.

To-night the special subject for our deliberation is how best to extend these principles so that every Hardware dealer in New England shall be brought under their influence. I think we all believe in some local combination that by frequent meetings shall bring local competitors in social touch one with another, feeling sure that by this means amicable relations would soon be established between us. This friendliness will soon take care of differences. How far the price question will be brought up is a matter for your discussion. How much combination it is best to encourage is also for you to decide. Combinations and trusts are not popular among the masses, though there is less antagonism against them now than formerly. I see that prominent labor leaders are growing more and more to favor them. They claim, not without reason, that soon law will step in and the "wasted energies" of competition, saved by combination, will be made to advance price of labor.

In the business world, however, to-day there is almost a mania for combination. Everything seems ripe for it. Trusts in everything. Consolidation everywhere. We as retail Hardware dealers shall be very unwise if we do not profit by this business drift. We need not placard it or flaunt it before the public. They will find out fast enough all we want them to know. They will as a mass in the end be better pleased and easier to sell to when they discover prices are steady and there is nothing to gain by searching the whole market for bottom figures. We ourselves care very little what we have to pay for goods provided the other fellow cannot get them at lower prices. Another strong reason why this association should get in its work now is that the great advance in prices gives us the opportunity to adjust them so as to leave us a fair margin of profit. Our customers expect a change, and we shall be very foolish to throw away this fine opportunity to make up for past years of shrinkage. We can do this if the other fellow can be brought into our organization. How best to do this is for you to decide.

We need also a strong body that can have influence in legislation, so that proper laws can be made and those already made enforced for our own good. We want to say to manufacturers and jobbers, "Keep out of retail business." We want to consult with and advise each other so as to weed out undesirable credits. There are a thousand things that need adjusting, and nothing more than good fellowship with each other. It will require charity and forbearance. Differences seemingly irreconcilable will come to the front. Misunderstandings will crop out, but if we discuss these points of controversy as between man and man, with charity for each other, the differences will disappear and a kind and quality of dividends will result which shall satisfy our every expectation

Subjects for Discussion.

The president then called attention to the subjects for discussion as embodied in the call for the meeting, which were as follows:

Is it advisable to continue as a social organization? If not, what can you suggest to make it a business organization?

The advisability of the formation of local associations in all towns and cities throughout New England as auxiliaries to the parent association.

A circular letter had been sent to each member of the association by a committee consisting of Hiram G. Janvrin, D. Fletcher Barber, Geo. W. Burditt, E. M. Richardson and J. Carlton Nichols, which was then read:

This association was organized March 15, 1893, for the purpose of bringing into closer social and business relations and to prevent unjust competition arising from misunderstandings between the Hardware dealers throughout the New England States.

It was the hope of its founders that all responsible dealers would recognize the need of co-operation and would speedily become members. This hope has to some extent been realized, but not sufficiently to enable the association to accomplish the best results.

At this present time the formation of gigantic trusts, and direct competition of the manufacturers with the Hardware trade, seem to make the need of a strong organization more than ever a necessity.

We have therefore decided to ask your assistance and request that you put your best efforts toward accomplishing the desired result.

First, by the formation of an association of the trade in your city.

Second, by obtaining membership in the New England Association, either in a body or by delegates chosen from your local association.

By the local association you will be enabled to bring your competitors to a better understanding with each other and to regulate all matters pertaining to your locality.

By representation in the New England Association of all the local associations each locality will be brought into touch with the others, will have part in the management of all matters of interest, and by thorough organization will be enabled to correct many of the evils that all must now recognize as existing and from which all have been suffering.

Will you co-operate with us, as above requested, in this work?

Please answer at once by letter addressed to James A. Farless, secretary, 9 Arch street, Boston, or by personal interview with any member of the committee.

FORMATION OF LOCAL ASSOCIATIONS.

The president then read a letter from a prominent Hardware concern in a New England city, in response to an invitation to be present at this meeting, as follows:

Your kind invitation of Friday is at hand, and I regret that a previous engagement for the date named will prevent my accepting it. You can count on the hearty support of our house, and I think I am justified in saying that of the other houses in this city, in your undertaking.

We have had a local association of the five houses in our town for some years, and the result to our pocketbooks has been so eminently satisfactory that we are rather enthusiastic on the subject. Our experience is probably that of all others, the hardest lesson to learn was that of confidence in our competitors; we had grown up in the way of thinking they were bold, bad men, ready to give their goods away to get our trade, and unscrupulous to the last degree, and that the only way to succeed was to meet their prices and go them one better. At our first meeting we discovered some signs that we had been wrong in our estimation of these men, and as

a starter agreed that we would not believe all of the reports of our customers, and that we would use the telephone freely between ourselves to verify them. We soon found that there were liars outside the ranks of Hardwaremen, and the difficulty in maintaining prices was more fancied than real.

Time and experience have strengthened this feeling, and we now have very little difficulty in regard to prices. It has required some patience and forbearance, but the result has more than paid for the exercise of these Christian virtues. Besides the increase of profits there has grown to be a better feeling among our customers; they are not aware of the existence of any combination, but finding prices uniform have ceased to try for cuts or rebates, and have paid the prices without murmur or complaint.

Another feature of our association, and the result of the friendly feeling among its members, is the "black list." On this list are the names of those unworthy of credit, and once on the list they are shut off from receiving credit until by their good works and by unanimous vote they are restored to our confidence. Just how much this list has saved us you can judge, for you undoubtedly have your share of just such customers. We have had them leave our store "mad as hatters," and return in a short time as "mild as doves," such is the benign influence of the black list. The whole trend of the times is in the direction of concentration of business, and you are but keeping step in your efforts to combine the whole retail trade for mutual benefit. You may be assured of my hearty co-operation.

Committee's Report.

A. G. Janvrin, chairman of the committee, in response to a call from the chair, read replies to the circular letter, in which the dealers expressed their willingness to co-operate with the New England Hardware Dealers' Association in the matter of local associations. It was decided to bring the matter to the attention of merchants outside of Boston, by means of a circular letter, with a view to inducing them to form local associations, and if this did not succeed personal solicitation by members of the committee was suggested, the association providing for the expenses of such personal solicitation, which met with unanimous approval.

Deciding Upon Local Prices.

Mr. Janvrin expressed the opinion that each local association should decide upon the prices at which goods should be sold in their own town. He believed that the maintenance of prices was the main thing, and would be the most effective in holding the associations; that prices should not be too high, but should be formulated on a basis below which the members would not go. Friendships among members of local associations would, in his opinion, do much toward regulating prices. The removal of unjust competition by manufacturers would be another object of the associations.

A Central Organization.

The following letter from a well-known Hardware merchant, containing suggestions in regard to an organization uniting local associations, was read by D. Fletcher Barber:

My convictions are that local associations are a good thing, and I see no reason why a large association might not be. My idea is to have delegates from the different Hardware associations of New England meet at some place to be named, and there form themselves into one grand organization. This would bring us all in touch with one another, getting better acquainted, and righting wrongs that are constantly coming up. We could bring a mighty power to bear on some of our manufacturers who need a little touching up once in a while. This matter is being discussed in our local organization, and it is possible later we may send a committee down to discuss the matter with members of your association.

Another Successful Association.

This was described in a letter from a prominent merchant who was unable to attend the meeting, as follows:

Our association is in its fifth year, and in good healthy condition. We meet once in two months, have a good attendance and enjoy a good supper, talk over business and discuss prices. Sometimes we have home papers read on various subjects. We have about 22 members, embracing the Hardware dealers of this and nearby towns. We have a schedule embracing most of the staple goods, and our members are living up to our agreement on prices. At first we had to use vigorous discipline with some members, but they are faithful now. The idea of joining your association has not been discussed in our meetings of late, but in talking with some of our members the last few days I find that they are in favor of it. We would like to hear from your association, to know what your idea is about the matter, on what conditions you would receive us into your fold. My own idea is that we would want to retain our local association and control our own schedule of prices, but act with you in larger matters, and meet with you once or twice a year. I think that I can promise you that we will be very good and well behaved members of your family.

Mr. Barber's Views.

Mr. Barber's idea was to form a central association, this body to have a record of all the prices of each local association, so that any local association could be informed of prices adopted by any other town. He also favored the idea of a list of irresponsible parties, and of notifying each association of any fraud perpetrated on a member of any of the associations.

The principal thing, in his estimation, was that the dealers should become well acquainted with each other, and that most of the other evils would be done away with. Mr. Barber thought that if one merchant in each town would invite the committee to help them establish local associations it would be better than for the committee to take the initiative.

Forming a Local Association.

The next speaker, in the course of his remarks, stated that six weeks ago the dealers of his town were as far apart as possible. In view of the advance in the price of Nails, he recently informed one of the merchants over the telephone that his firm were going to advance their price, and asked him if he would not do the same thing? The merchant said he would, and while "we are about it," he added, "won't you fix prices on Barb Wire, Poultry Netting and Screen Wire Cloth?" As a result of this beginning the nine merchants of the town were induced to attend a meeting, where an association was formed with a president and secretary.

A second meeting was held a week later, where a still better feeling was developed, and one and all expressed the opinion that the association was a good thing. The speaker was surprised at the ease with which the result was accomplished, and believed that nine-tenths of the misunderstandings and difficulties are imaginary. He considered that in approaching the strongest competitors it was better to say "how foolish I have been in the matter of cutting prices," not "how foolish you have been."

Undesirable Competition.

The next speaker remarked that he was interested in the New England Hardware Dealers' Association, though not a member, and that he was heartily in sympathy with the local association movement. He was of the opinion that the spirit of competition would die out with advancing prices and better and more prosperous times. He pointed out that the great trouble in the country was from agents representing manufacturers having only an office in Boston, and competition from the larger cities. These interested contractors, and sold them goods at lower prices than the local merchant could. Such competition, he remarked, was a constant thorn in the small towns. He believed that purchasers now feel that they should and will be obliged to pay higher prices, and that the local association movement could be put on a successful basis now better than at any previous time. It was his opinion that the New England Hardware Dealers' As-

sociation could better act as an intermediary, and that it should be regarded as an organization about which local associations could cluster.

Interference of Large Concerns.

The views expressed by the next speaker were to the effect that part of the trouble of cutting prices would be eliminated if large dealers would keep away when small dealers were figuring on jobs. He recommended also that the officers and other members of the association call upon dealers and aid them in forming local associations.

Pushing the Work.

Another member of the association was so favorably impressed with the desirability of local associations that he expressed his intention of trying to induce his competitors to form one.

Complaint was made of the prices made by manufacturers and manufacturers' agents to contractors by the next speaker. He thought in arranging to control prices that this kind of competition should be taken into consideration.

Discussion Deferred.

As the interest of the meeting had been centered so entirely upon the formation of local associations and the hour for adjournment had arrived, it was decided that the question of the advisability of continuing the New England Hardware Dealers' Association as a social or business organization should be the subject for discussion at the next meeting to be held May 10. All members were urged to be present at this meeting.

Entertainment Committee.

The president named the following gentlemen as members of the Entertainment Committee for May 10: A. H. Decatur, J. Carlton Nichols and Joseph A. Cook. The meeting then adjourned after a very profitable session. An enjoyable feature of the evening was the instrumental and vocal selections which were interspersed among the speeches.

The Most Eastern Hardware Store.

WHAT is doubtless the most Eastern Hardware store in the country is that of which George W. Capen is proprietor, at Eastport, Maine. Eastport is a lively town of about 5000 inhabitants and situated on the coast in the extreme southeastern corner of the State. Mr. Capen runs a store of modest appearance and proportions, but does a business of from $25,000 to $35,000 a year.

Price-Lists, Circulars, &c.

THE QUINBY BRUSH COMPANY, Manchester, N. H., and Boston, Mass.: Illustrated catalogue and price-list of Circular Wheel Brushes, patented and drawn styles, also Brushes, Buffs and Polishing Wheels for metal goods manufacturers.

WM. C. SMITH & Co., 1429 North Twenty-first street, Philadelphia: Columbian 1000 Shot, Champion and Junior Champion Air Rifles.

JAMES S. BARRON & Co., 24-30 Hudson street and 160 and 162 Duane street, New York: Wooden Ware, House Furnishing Goods, Government, Railroad, Steamship and Electrical Supplies, &c.

J. S. WOODHOUSE, successor to R. H. Allen Company, 191 Water street, New York: Catalogue H of 65 pages, devoted to Agricultural Implements.

H. W. COOPER, Moline, Ill.: Illustrated catalogue 36 pages, of patented specialties manufactured for the Saddlery Hardware trade, consisting of the Moline Trees, Pads, Clips, Clevises, Trace Carriers, Harness Buckles, Loops, Dees, &c. A line of Creasing Machines is also shown.

Fribley Hardware & Implement Company, Baxter Springs, Kan., have been incorporated with a capital stock of $5500. They have a storeroom 25 x 100 feet, 14 feet high. In the rear is a Harness repair shop. They also have a new Buggy, Wagon and Implement display room 38 x 74 feet.

Among the Hardware Trade.

Goode & Esden, Sidney, Iowa, have erected a new two-story brick building for the accommodation of their business. The building is 107 x 41 feet in dimensions, with full basement.

The N. B. Handy Company, Lynchburg, Va., have been incorporated with a capital stock of $25,000. They will do an exclusively wholesale business in Heavy Hardware.

The store of John Holliday at Greentown, Ind., was destroyed by fire a few weeks since. Mr. Holliday's loss above insurance was $2500. Mr. Holliday subsequently formed a partnership and a new two-story brick building 31 x 100 feet is now in course of erection. It will be occupied by the firm about June 15 next. The line handled will include a general assortment of Hardware and Agricultural Implements.

A. E Mayhew has recently purchased the stock of J W. Wallack & Co. at Effingham, Kan.

McCracken & Winter Hardware Company, Lancaster, Ohio, have recently purchased and improved a brick warehouse building, which they are occupying with a stock of Buggies, Carriages, &c., a line which they have not heretofore handled.

The store of Cory & Newton at Kane, Ill., was recently destroyed by fire, nothing being saved. The firm are again in business with a full new stock.

Wolfe City Hardware Company, Wolfe City, Texas, have been incorporated with a capital stock of $10,000. The incorporators are E. Jackson, A. S. Lacy, W. P. Maloney, C. L. Parrott and H. C. Tittsworth.

Wilson Brothers, Roswell, N. M., have sold out to Stringfellow, Hume & Tannehill, who are also conducting stores at Amarillo and Canon City, Tex.

Clare Hardware Company's store at Clare, Mich., was damaged to the extent of from $500 to $700 a short time since. The fire was confined to the back part of the store.

W. D. Carter, Weatherford, Texas, has sold an interest in his business to F. B. Egelhoff, formerly a traveler for Manser & Tibbetts Implement Company, St. Louis. The style has become W. D. Carter & Co.

Abell, Wilbur & Co., Mesa, Ariz., have been incorporated with a capital stock of $20,000 under the style of the Abell, Wilbur Mullen Hardware Company, and have just opened another store in the new Odd Fellows' Building at Tempe. The new store is equipped with a complete stock of general Hardware, Farm Implements, Wagons, Buggies and Wagon Material.

Hobbs Hardware Company's establishment at London, Ontario, was recently damaged by fire to the extent of $2400. Business was not interfered with in any way and continued uninterruptedly.

Colcord-Richardson Company, Danvers, Mass., have been incorporated for the purpose of carrying on a general Agricultural Implement, Seed and repair business, and dealing in Heating Apparatus, Wind Mills, Pumps and Steam Supplies. The company state that they have purchased from the assignee the entire assets of Newhall & Colcord, and will continue the business in the quarters formerly occupied by that firm.

White & Pope—H. L. White and S. B. Pope—have recently engaged in business at New Berlin, N. Y. Besides Hardware they are carrying a stock of Stoves and Heating Apparatus, Wooden Ware, Farm Machinery, &c.

The store of Ahrenbeck & Terrell, Navasota, Texas, was robbed a short time since of a number of Shot Guns and Revolvers. A reward of $25 was offered for the recovery of the goods.

C. H. Brady, Deerfield, Minn., is now doing a general merchandise business, handling dry goods and boots and shoes in addition to his former Hardware and grocery line.

W. E. Cole has succeeded Gates & Cole in the Hardware and Implement busines at Monroe, Neb. Mr. Cole has lately installed some of the J. D. Warren Mfg. Company's store fixtures.

The Kirk Hardware & Furniture Company, Patton, Pa., have opened a branch store at Windber.

The store of Starr Brothers, Valparaiso, Ind., was damaged by fire a short time since. The firm have everything in good shape again and are conducting business as usual.

G. F. Demeree & Co. have succeeded Demeree & Olendorf at Harpersville, N. Y. They are occupying a new storeroom, which is referred to as a decided change for the better.

G. F. Walters & Son are successors to E. A. Walters & Bro. at Shippensburg, Pa. A $12,000 stock is carried, comprising Hardware, Stoves, Tinware, Bicycles and Sporting Goods. There is also a plumbing and steam and hot water heating department.

Beals & Bennett are successors to Beals & Scott at Cicero, Ind.

David W. Brice, Wheatland, Wyo., has sold out his Hardware business, which is now being conducted under the style of the Wheatland Cash Store.

D. R. Fritts, Parish, N. Y., has sold out his Hardware business to R. C. Robertson and F. A. Church, who are continuing under the style of Robertson & Church. Mr. Fritts is now giving his entire attention to the manufacture of a patent Cream Separator, with factory at Syracuse.

G. B. Gibson's Sons have succeeded G. B. Gibson at Rising Sun, Ind. The new firm are rearranging the store and putting in a larger stock.

E. E. Dyer, Woodfords, Maine, has sold out his Hardware, Crockery and Tinware stock to L. D. Huntress, who will continue at the old stand. Mr. Huntress has also purchased the Shelf Hardware stock of Williams & Cutts and removed it to Mr. Dyer's former store. Williams & Cutts will hereafter confine their attention to the sale of Stoves and plumbing.

The charter of the Southern Hardware Company, Macon, Ga., has been amended by changing the name to Merritt Hardware Company. No other change has been made in the concern, the stockholders and officers being the same as heretofore.

The People's Hardware Company, composed of O. A. Hopperstead, Ralph J. Bush and Gustav Dietrich, will open a new stock of Hardware in Muskegon, Mich., about the 15th inst.

John R. Meining, formerly in the Hardware trade at Duluth, has put in a new stock at Cass Lake, Minn.

Theodore Brockhoff, formerly in the Hardware trade at Wadena, is erecting a building at Deer Creek, Minn., preparatory to putting in a complete stock of Hardware.

Gilmore & Davis, who are contractors and builders and dealers in Hardware, Building Material, &c., at Tallahassee, Fla., occupy a double front building of handsome design, in which care has been taken to secure an attractive and convenient arrangement of stock. The building consists of four floors and basement, which provide accommodation for a large and varied assortment of goods. A photograph which they have sent us gives a view of the interior of their salesroom, showing the admirable arrangement of goods. Their line of Shelf Hardware is kept on the left side of the store, while House Furnishing Goods occupy the right.

GRAND CROSSING TACK COMPANY, Grand Crossing, Ill., a few weeks since made a contract with the Morgan Construction Company of Worcester, Mass., to install for them in connection with their present plant one of their latest types of continuous rod mills, the capacity of which will be 200 tons per day. It will probably be some time in the fall before the company have this mill in operation. In the meantime they are going to prepare themselves to make all kinds of Wire. They state that they have been operating their Wire Nail plant, which has a capacity of about 1000 kegs a day, barring a few months they were out of the market on account of their fire, for the last five or six years. They will not be in position to supply Wire of any kind until after the Rod mill is erected and in operation, but are now prepared to fill orders for standard and miscellaneous Wire Nails, Double Pointed Tacks and Rivets. When all of their plans are completed they will be in position, they advise us, not only to make Wire Rods but to finish their Rod product into Wire Nails, standard and miscellaneous, Rivets, Staples and Double Pointed Tacks, as well as all kinds of Wire, coppered and galvanized, making a very complete assortment of Wire products to offer the trade, in connection with a full line of Tacks, small Nails, Glaziers' Points, &c., which they are now making from Plate.

Miscellaneous Notes.

Anti-Combine Shovels.

Allerton-Clarke Company, 97 Chambers street, New York, are the general agents for F. E. Kohler & Co., Canton, Ohio, manufacturers of hardware specialties. A line of goods recently brought out by the latter company are labeled and known as Anti-Combine Hollowback D handle all steel shovels. They are made in both black and polished, with square points. No. 20 is D handle; No. 21, long handle, polished. No. 22 is D handle, and No. 23 long handle, black, the black finish listing $9.50 per dozen, and the polished $10 per dozen. As soon as the dies are finished they will be prepared to furnish scoops, coal shovels, &c.

Bicycle Bells with Intaglio Designs.

Alford & Berkele Company, 98 Chambers street, New York, are introducing a line of bicycle bells controlled by them, in which the upper surface of the gong is intaglio finished. It is all hand work, a form of incised carving; a sunk design, that is, opposed to the cameo. Portions of the work are inlaid delicately with enamel in eagles with shields, birds, deer, flowers, &c., there being 30 or more styles and designs, the sizes ranging from 1¾ to 2½ inches diameter of gong. The enamel is weather proof and permanent, the whole design having a dainty appearance, which makes it especially suitable for ladies' wheels. Tea and call bells can also be furnished in the same decoration.

Pruning Shears, &c.

The J. T. Henry Mfg. Company, Hamden, Conn., manufacturers of pruning shears, orange clippers, grape shears and tree pruners, have, since their establishment in 1860, added to their line from time to time, and have constantly been making improvements to the same. Referring to their cheaper grade of shears they state that they are well and substantially made and are very strong and durable goods. They further state that all grades of their shears are made with a pivot bolt and handles mortised to receive it, the construction being such that the bolt cannot turn around when taking off or securing on the nut. The handles of their shears are made of refined malleable iron, and the blades of cast steel.

Kitselman Ornamental Fence.

Kitselman Bros., Ridgeville, Ind., are manufacturing 26 designs of their Kitselman ornamental fence, one of which is illustrated in their advertisement in this issue. This fence is recommended to those artistically inclined as well as those who are looking after something substantial. The pickets are of twisted wire about ¼ inch in diameter and with the cable wires are woven in such a way as to provide for expansion and contraction. All posts and railings are made of steel tubing, while the fittings are of malleable iron. The fence is offered at a moderate price. The firm also manufacture coiled spring wire, coiled spring woven wire farm and poultry fencing in the roll and the Duplex woven wire fence machine (ball bearing and automatic). They were awarded a gold medal on machine, farm and ornamental fencing at the late Trans-Mississippi Exposition. They have both machine and ornamental fence catalogues and will be pleased to send either one or both to inquiring merchants.

Bathroom Fixtures.

Meriden Bronze Company, 30 Park place, New York, and Meriden, Conn., have recently added several new articles to their large line of bathroom fittings. One is a cigar and newspaper holder, another a soap rack. Both are made of sheet brass, the soap rack being so made that it can be secured to the side wall or bent to conform to the curved rim of detached porcelain tubs. There are also in a new construction an additional assortment of soap holders in oval, square and triangular shapes, the improvement bettering the character of the goods while reducing the price a third. Still another commodity is a new design of tooth brush holder. Two of the latest novelties in this line are a revolving towel rack and a hand rail. The towel rack is designed for a roller towel, the roller being ⅞ x 18 inches and so made that it cannot get out of place unless removed by hand. The hand rail is intended to be placed on the wall at the side of the tub for the bather to

grasp in getting up. The rail, held by two handsome standards, is 42 x ⅞ inches in dimensions. All of these goods as well as the whole line are substantially made of cast or sheet brass according to the necessities of the article and highly polished and nickeled, although such goods as robe hooks, &c., can be finished in bronze and other styles if so desired.

Fig. 1. Coldwell's Self Adjusting Ball Bearing Lawn Mower.

Coldwell's Self Adjusting Ball Bearing Lawn Mower.

Thomas Coldwell, president of the Coldwell Lawn Mower Company, Newburgh, N. Y., has just been granted a patent for a ball bearing. The principal novelty in it consists in its being self adjusting and its simplicity. It is so arranged, it is explained, that one set screw adjusts both bearings and when properly adjusted it is kept so by a simple spring device which automatically takes up all the lost motion in both bearings occasioned by wear; hence there is practically no lost motion in the bearings. It is pointed out that when the bearings need adjusting it can be done quickly, that the adjustment is automatic, which when once properly set needs no attention from the operator for a long time, that the bearing compensates for wear and secures a journal that is always free from lost motion, and prevents the revolving knives dropping down upon the lower knife, and that it does not require an expert to adjust the machine.

Galvanic Razo.

Cattaraugus Cutlery Company, Little Valley, N. Y., are putting up a razor paste called Galvanic Razo in the form shown in the accompanying cut. The manufactnrers state that after some years of experimenting they have found a combination of grits that will put a razor in the pink of fitness in a very short time, and that they have so mixed the grit with certain oils that it is in the form of stiff paste, which will never become hard or dissolve. The paste is put up in nicely enameled tin boxes, as shown in the illustration, and customers are furnished attractive display easels, each holding a dozen boxes of the paste.

Galvanic Razo.

Standard Egg Beaters.

The accompanying cuts represent new Egg Beaters put on the market by the Standard Company, Boston.

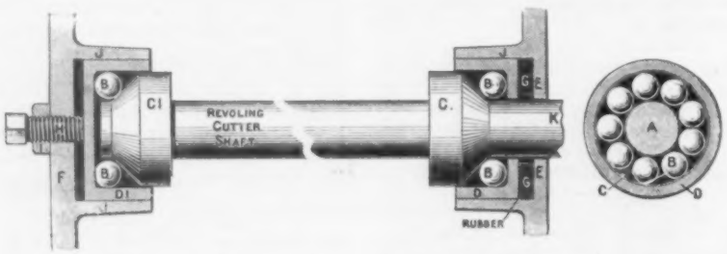
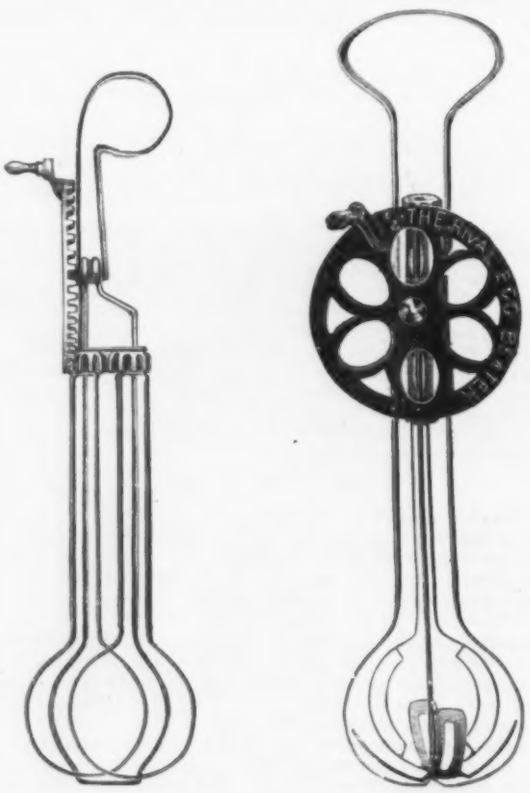


Fig 2. Self Adjusting Ball Bearing.

The new loop shaped handle of the No. 5 C beater is referred to as especially adapted to export trade, as they pack in less space than the same sized beater with the regular style of handle. The Rival beater is spoken of as a new pattern, and is held in high estimation by the makers, because of its construction and operation.



No 5 C Steel Handle. Rival

Standard Egg Beaters.

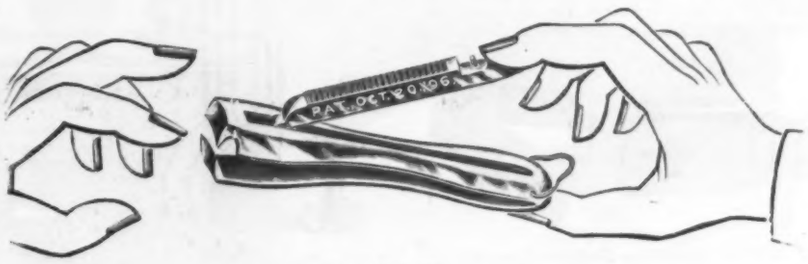
New Warner Steel Rim Lock.

The United States Steel Lock Company, manufacturers of the Warner Steel Locks, Clinton, Iowa, have brought out an improved rim lock known as No. 1105 in their series, which is herewith illustrated. The principal feature of improvement is pointed out as being the simplicity in reversing the latch bolt. When the cover is removed the forward part of the latch may be lifted up and turned over without disturbing any of the other parts or the springs in the lock case. It is very substantially made, locks on both sides of the latch slide, and has a bearing on the case and cover of the lock. Another point is making the corner post hollow, thus permitting the wood screw which fastens the lock to the door to go through the post, thus preventing the cap and case coming together under pressure, which would bind the latch bolt. The hub hole, it is remarked, instead of having the sharp edge of the steel working against the hub, is now drawn, making a serviceable and mechanical bearing for the hub to work on. The improvements made in this rim lock, it is stated, will be appreciated not only by the trade, but by carpenters into whose hands they come. Application has been made for a patent on the reversing feature.

New Warner Steel Rim Lock.

Gem Nail Clipper.

The H. C. Cook & Co., Ansonia, Conn., are manufacturing the Gem nail clipper as here illustrated. It is made from tool steel and nickeled, is less than 2 inches long and has no sharp corners to wear the pocket. The jaws are hardened and accurately ground. The clipper will both cut and file the nails, cutting them short or leaving them long as desired. It is referred to as a practical manicure device and especially useful in removing hang nails.

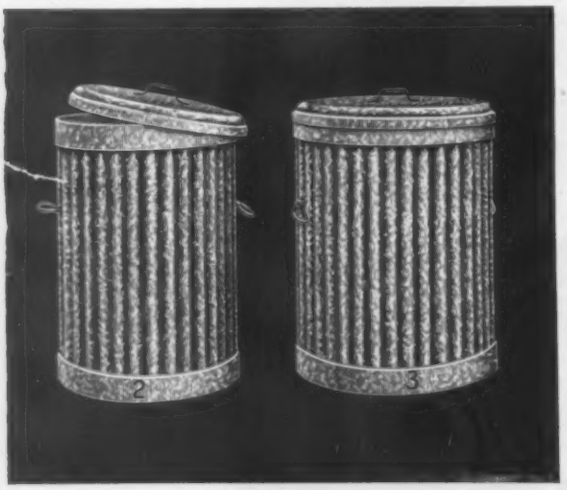


Gem Nail Clipper.

J. D. Warren, president of the J. D. Warren Mfg. Company, Masonic Temple, Chicago, has returned from a week's trip through the South, during which he visited New Orleans, Mobile, Montgomery, Birmingham and Chattanooga. He found much interest in the Warren system of hardware shelving and secured some good orders. He sold the Mayberry & Watson Company at Birmingham the finest outfit of this kind so far designed. The shelving is to be 142 feet in length. It will be placed in a store room 182 feet deep and 55 feet wide. In the rear of the room beyond the shelving the office will be located. This room will be 17 feet high, so that it will be a fine room in which to make a display of goods. The company have been in business for some time, and now find it necessary to greatly enlarge their facilities, and are erecting a new building which will be five stories nigh, all of which will be devoted to their purposes. The Tullis Hardware Company, Montgomery, put in a Warren outfit last August, and say that their sales have more than doubled since then, which they credit largely to the improved method of displaying their stock. They have made no increase in their working force, the enlarged business being easily handled. They state that a great deal has been accomplished in inducing people to buy more when visiting their store. Other outfits are under negotiations at several points. Mr. Warren was impressed with the general air of thrift and prosperity shown in the South and especially at New Orleans. Great improvements are being made which are calculated to add to the health and convenience of the people, and much energy is shown in carrying forward all kinds of projects. A great deal is being accomplished in the building up of new manufacturing enterprises.

Corrugated Ash and Garbage Can.

The Witt Cornice Company, Eighth street and Broadway, Cincinnati, Ohio, are manufacturing the patent corrugated ash and garbage can here illustrated. It is made of galvanized steel and is designed to hold ashes, garbage or other material or refuse. The cans are made in three sizes—No. 1, 15¼ x 26 inches; No. 2, 18 x 26 inches, and No. 3, 20½ x 26 inches, weighing 26, 28 and 30 pounds respectively. The bodies are corrugated from a single piece of steel, 24 gauge, the bottoms and covers, also of one piece of metal, being 22 gauge. The bottoms are made concave and the lids convex, the latter fitting



Corrugated Ash and Garbage Can.

snugly over the outside edge of can, thus keeping out rain when exposed to the elements and allowing more space for ashes, &c. There are no wooden strips or longitudinal braces to break or increase the weight, the corrugations, which are 2 inches wide, giving the necessary strength while keeping the can light. The body is strengthened by substantial bands riveted to a flat margin left at both top and bottom of can. The can is galvanized after it is made. Neal & Brinker, 168 Church street, New York, are general Eastern agents.

Improved Whiting Wrench.

Whiting Mfg. Company, Northborough, Mass., are making the improved Whiting wrench, as here illustrated. It is a combination, ratchet action wrench for both nut

Fig. 1.—Improved Whiting Wrench as Used on Nuts.

and pipe work, the illustrations showing the method of using on either class of work. Fig. 1 shows the tool in use on an ordinary nut. The ratchet action makes it unnecessary to remove the wrench from the nut until the nut is screwed down tight. A slight turn backward of

Fig. 2.—Improved Whiting Wrench as Used on Pipes, &c.

the wrist causes the upper jaw to slip back over the edge of the nut, upon which the spring again forces the jaws together, ready for another turn. The point is made that the action of the wrench in turning the nut tightens the grip so there can be no slipping. Fig. 2 represents it in use on round objects. When brought in contact with piping, &c., a slight turn backward will cause the jaws, by means of the spring action referred to, to grasp the pipe with the top jaw slightly back; then the harder the wrench is turned the tighter it will bind. The grip of the wrench is such that it is necessary to have only the top jaw serrated, and the teeth are so cut, we are advised, that damage is not done when using it on nuts. The wrenches are made in 6, 8, 10 and 12 inch sizes.

New Departure Rotary Hand Corn Planter.

The Brown, Hinman & Huntington Company, Columbus, Ohio, are manufacturing the New Departure rotary hand corn planter here illustrated. Some of the improvements in construction peculiar to this planter are spring

New Departure Rotary Hand Corn Planter.

actuated push and pull pawls, which it is said give to the seed disks a smooth, even, continuous motion, which obviates any jerky or irregular action. There is also a metal cut off of approved design, which is referred to as superior to rubber and bristle cut offs for the same purpose, because it will last as long as the planter. Each planter has three seed disks with different sized cups, so that by changing the disks the number of grains to be dropped can be varied, while to change a disk requires but the loosening of one nut.

Improved Steam Glue Heater.

E. M. Dart Mfg. Company, 136 Clifford street, Providence, R. I., are making the improved steam glue heater

Improved Steam Glue Heater.

here represented. The steam box is 15 inches long, 8 inches wide and 7½ inches deep. The kettles are made of copper and each has a capacity of 2 quarts. This device

is designed for properly cooking and heating glue. In this apparatus a perforated seamless brass tube extends the entire interior length of steam box, permitting the water that has condensed in the connecting steam pipe to flow into the steam box when the steam valve is opened. From this source comes the supply of water that always remains fully half the depth of the steam box, any surplus running off through an opening provided in the right hand end, to be fitted with pipe to carry it away for proper disposal. The draw cock in front is a convenience for obtaining hot water, which is often desirable. The range of service concentrated within this hot box can be regulated to furnish any quantity of cooked glue from 30 gallons to a small quantity in ten hours. The covers shown on the kettles can be used when the kettles are removed to prevent escape of steam. If a larger capacity is required the kettles can be furnished with extended tops capable of holding an additional gallon each. The raised edge at the top prevents water flowing over that might accumulate by excessive boiling, and a pipe within the box connecting with the top provides an opening for the water to return again.

Bindley Automatic Wrench.

The Smith & Hemenway Company, 20 Warren street, New York, are manufacturing at their factory in Utica, N. Y., the Bindley automatic wrench, here shown. It is designed not only for pipe work, but for any use to which a wrench is put. It is made entirely of steel, the handles being of bicycle tubing. A feature of the tool is that it takes the object on any one of three surfaces, and is guaranteed by the company not to crush the pipe. Another important characteristic which they emphasize is that it cannot lock on the pipe, but releases the grip as soon as the pressure is taken off, a simple side turn accomplishing this result. It is referred to as light, durable and effective. Six sizes are made regularly, and wrenches for 8, 10, 12, 16 inch and larger pipe will be made to order. No. 8 will take pipe $\frac{1}{8}$ to $\frac{3}{4}$ inch, inclusive; No. 14, $\frac{3}{8}$ to 1 inch; No. 20, $\frac{3}{4}$ to 2 inch; No. 28, $1\frac{1}{2}$ to 3 inch; No. 38, 3 to $4\frac{1}{2}$ inch, and No. 52, 4 to 6 inch pipe. The wrenches correspond in length with the numbers they bear—that is, 8, 14 20, 28, 38 and 52 inches long over all, the No. 14 weighing 2 pounds; No. 20, 4 pounds, and No. 52, 38 pounds each.

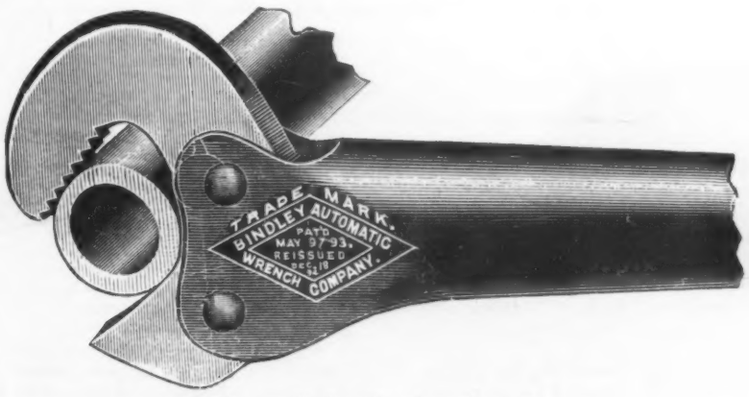


Fig. 1.—Bindley Wrench on Large Pipe.

Fig. 2.—Mode of Gripping Small Pipe.

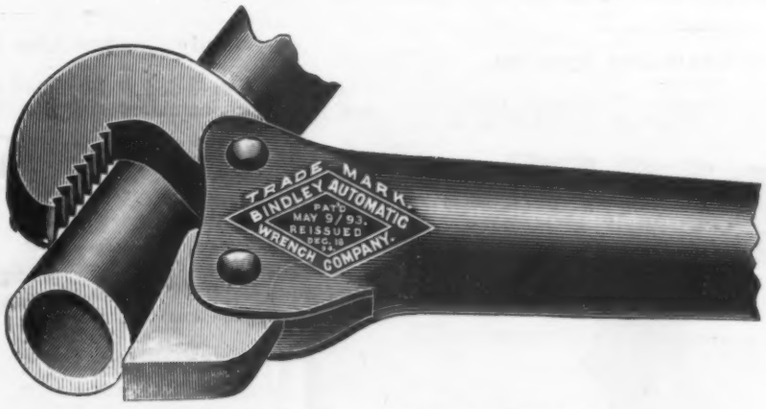


Fig. 3.—Showing How a Side Twist Releases Grip.

The handsome new store of Wood & Hotchkiss at Whitehall, N. Y., was formally opened on the 1st inst. The building is an imposing one, with a frontage of 42 feet and a total length of 150 feet. The salesroom proper is 90 feet long. Beneath is a cellar of similar size. Above the main storeroom, which is 13 feet in the clear, are two more rooms of the same size. Back of the main salesroom is the plumbing shop, 60 feet in length. Above are two rooms of equal proportions. A large Variety hand elevator runs from cellar to garret, the shaft running between the main rooms and annex, so that goods may be loaded from any room in the building. A broad and ornamental stairway rising from the rear central part of the salesroom connects all floors There are also stairs at the rear of the annex. The building is lighted throughout by acetylene gas. The floor of the main salesroom is of Georgia pine. The ceiling is of North Carolina pine, finished in Demar varnish. On the north side are 30 cabinets with 60 doors. There are three large display windows in the vestibule front, each window having three sides. Extending along the south side of the main room is a base with a system of cabinets and drawers for fine Hardware. There are also a number of other cabinets as well as fixtures for the accommodation of Nails, Bolts, Screws, Horseshoes, &c. The establishment gives ample evidence

of the time and thought given to its convenient and attractive arrangement. The stock carried aggregates over $20,000.

Astoria Design.

R. Wallace & Sons Mfg Company Wallingford, Conn., and 226 Fifth avenue, New York, have just brought out

Astoria Design for Flat Ware.

the Astoria design, as shown in the accompanying engraving. It is made in all the standard forms of forks, spoons, &c., and fancy pieces as well, in A1 and triple plate, together with a line of hollow handle knives. The goods are branded "1835—R. Wallace," and the plating is on 18 per cent. nickel silver.

Williamson's Hand Power Cork Screw.

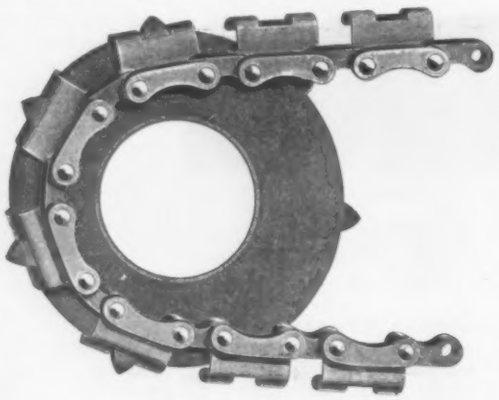
Williamson Company, Newark, N. J., are putting on the market their new hand power combination cork screw as here shown. It will remove crowns and Baltimore seals, break the wires and extract corks. This ex-

Williamson's Combination Hand Power Cork Screw.

tractor is made with the wire coil as well as the forged worm screw, all parts being heavily nickeled except the handle, which is turned from either boxwood or rosewood as preferred. Each dozen of cork screws is accompanied by an attractive display card demonstrating the method of operation.

Kling Power Chain and Sprocket.

The Ætna Hardware Company, Unionville, Conn., are making the Kling power chain and sprocket, as shown



Kling Power Chain and Sprocket.

herewith. While designed for any form of chain geared machine it has been especially adapted for bicycle use. It can be used on any make of bicycle, and any desired gear can be supplied. The front sprocket remains unchanged, but in equipping wheels already made the rear sprocket is furnished. By this method, while not claiming to make power, they do claim to save power now wasted in the ordinary forms of chain gearing. With either seven, eight or nine tooth Kling rear sprockets a gain of 31¼ per cent. in leverage is claimed, which means a corresponding saving of power. This chain is also intended for transmitting power for any purpose other than bicycling, full information and details being sent on request.

Wallace Safety Whiffletree Hook.

Wallace, Mills & Co., Oneonta, N. Y., are manufacturing the Wallace Safety whiffletree hook shown herewith. It is made of No. 12 gauge spring steel wire and is 4½ inches long over all. It is secured in the whiffletree

Wallace Safety Whiffletree Hook.

at the coil spring end with a round head screw, the object of the device being to keep traces from slipping off the whiffletree. It is made of plain wire for manufacturers who wish to paint it to conform to the wood work and finished in japan and nickel regularly. Some of the advantages claimed by the manufacturers are that it is simple, durable, safe and inexpensive, will work on whiffletrees with iron eye, will not clog or rattle and has no hinge or joint to wear.

Handy Clothes Line Hook.

E. H. Wilson & Co., 45 Raymond street, Boston, Allston, Mass., are manufacturing the Handy clothes line

Handy Clothes Line Hook.

hook here illustrated. It is made from steel wire and then galvanized. In use it is driven in the top of a string piece connecting the fences and not on its face, no screws being required. The hook can be used about stables stores, &c., advantageously.

Current Hardware Prices.

APRIL 19, 1899.

NOTE.—The quotations given below represent Current Hardware Prices, whether made by manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail Hardware merchants. Very small orders and broken packages often command higher prices, while lower prices are often given to larger buyers.

The character @ is used to indicate a range of price: thus discount 50 & 10 @ 50 & 10 & 5%, signifies that the goods in question are sold at prices ranges from 50 & 10% to 50 & 10 & 5%.

Many of the lists referred to in the following quotations are given in *The Iron Age* Standard Hardware Lists (price 50 cents). On many other articles, however, the different manufacturers have their own lists, which they will send to the trade on application. In the advertising columns will be found the announcements of manufacturers of nearly all kinds of Hardware, who will be pleased to furnish the trade information in regard to their goods and prices.

In the present condition of the market while many advanced prices are announced by manufacturers, in many cases lower prices are made by the wholesale trade who have stocks on hand purchased at former quotations.

Adjusters Blind—

Domestic, ₩ doz. $3.00....33⅓@33⅓&10%
North's.....10%
Zimmerman's—See *Fasteners, Blind.*

Window Stop—

Ives' Patent.....40%
Taplin's Perfection.....55%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anti-Rattlers—

Burton's No. 1.....₩ doz. pr., $1.00
Burton's No. 2.....₩ doz. pr., $0.75
Fernald's, Wire.....₩ doz. pr., $0.75

Anvils—American—

Eagle Anvils, ₩ lb.....7¼@7¾¢
Hay-Budden, Wrought.....8¼@8¾¢
Horseshoe brand, Wrought.....9¼@9¾¢
Samson, ₩ lb.....7¼@8¢
Trenton, Wrought.....₩ lb 8¼@8¾¢

Imported—

Armitage's Mouse Hole.....8¾@9¼¢
Peter Wright's.....9¼@9¾¢

Anvil, Vise and Drill—

Millers Falls Co., $18.00.....30%

Apple Parers—See *Parers, Apple, &c.*

Augers and Bits—

Common Double Spur.....75&10@10%
Boring Machine Augers.....75&10@80%
Car Bits, 12-in. twist.60&10&10@70&10%
Jennings' Pattern Car Bits...60@60&10%
Jennings' Pattern Auger Bits.....70&5@70&10%
Adams Art Auger Bit.....30%
Cincinnati Bell Hangers' Bits.....40%
Ford's Auger and Car Bits.....40&10@40&10&10%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list.....40@40&10%
No. 30. R. Jennings' List..50&10@60%
Russell Jennings'.....25&10&2½%
L'Hommedieu Car Bits15&10@15&10&5%
Pugh's Black.....20%
Pugh's ennings' Pattern.....35%
Snell's Car Bits.....60&10&5@70%
Wright's Jennings Bits (R. Jennings' list).....50%

Bit Stock Drills—

Standard List.....60&10&10@70%
Cincinnati, for metal.....50&5@50&10%
Syracuse, for wood.....40%
W. & B. Wood Boring Brace Drills...40%

Expansive Bits—

Clark's small, $18; large, $26.....50@50&10%
Lavigne's Clark's Pattern, No. 1, ₩ doz., $26; No. 2, $18...50@50&10%
Steer's No. 1, $36; No. 2, $18...40@40&5%
Swan's.....40@40&10%

Gimlet Bits—

Common Double Cut...₩ gr. $2.75@3.25
German Pattern.....₩ gr. $5.00
Double Cut, makers' lists....50@50&10%
See also *Gimlets.*

Hollow Augers—

Bonney's Adjustable, ₩ doz.....$16.00
Cincinnati Adjustable.....25&10%
Cincinnati Standard.....25&10%
Douglass'.....33⅓@33⅓&10%
Stearns', Common, No. 6.....10%
Stearns', all other numbers.....20&10%

Ship Augers and Bits—

Ford's.....40&10@40&10&10%
Snell's.....40& 0&5%
L'Hommedieu's.....15&10@15&10&10%
Watrous'.....40@40&10%

Awl Hafts, See *Hafts, Awl.*

Awls—

Brad Awls:
Handled.....₩ gr. $1.75@3.10
Unhandled, Shouldered..₩ gr. 65@70¢
Unhandled, Patent .....₩ gr. 70@75¢
Peg Awls:
Unhandled, Patent .....₩ gr, 33@35¢
Unhandled, Shouldered..₩ gr. 65@70¢
Scratch Awls:
Handled, Common....₩ gr. $3.25@3.50
Handled, Socket....₩ gr. $11.00@12.00

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—

First quality, best brands...$5.00@5.25
First quality, other brands...$4.25@4.75
Jobbers' Special Brands, good quality..$4.00@4.75
Cheap Handled Axes.....$4.75@5.25
Beveled, add 25¢ ₩ doz.

Axle Grease—See *Grease, Axle*

Axles—

	Iron.	Steel.
Concord, loose collar....	4¾¢	4¾¢
Concord, solid collar....	5¼¢	5 ¢
No 1 Common.....	3¾¢	3¼¢
No. 1½ Com., New Style.	4 ¢	3¾¢
No. 2, Solid Collar.....	4¼¢	4 ¢
Nos. 7, 8 11 to 14.....	60&10&5%	
Nos. 15 to 18.....	50%	
Nos. 19 to 22.....	70%	

Balances—

Sash—

Caldwell low list.....30%
Vanderbilt.....30%

Spring—

Spring Balances.....50&50@10%

No.	2000	20	30
Chatillon, ₩ doz...	$0.60	.70	1.50

Chatillon Straight Balances.....50%
Chatillon Circular Balances.....50&10%

Barb Wire—See *Wire, Barb*

Bars—Crow—

Steel Crowbars, 10 to 40 lb. ₩ lb 2¼@2¾¢

Beams, Scale—

Scale Beams, List Jan. 12, '82..50@50&5%
Chatillon's No. 1.....40%
Chatillon's No. 2.....50%

Beaters—Egg—

New Dover (Dover Stamping Co.).
₩ doz. 75¢ ₩ gr. $7.50
Dover, Ex. Family size.....₩ doz. $2.00
New Dover.....₩ doz. 75¢; ₩ gro. $7.50
Dover (Standard Co.), No. 10, ₩ gro. $5.50; No. 5, $6.00; No. 15, $12.00
Dover (Tap in Mf. Co.) No. 50, ₩ gro. $5.25; No. 100 $6.00; No. 102, $8.00; No. 150, ₩ doz. $1.50; No. 152 $2.00.
Lebanon.....₩ doz. $2.75@$3.00
Spiral.....₩ gr. $4.25@$4.50
Standard Lyon..₩ doz. $1.75; 3 doz. $5.00
Wonder (S. S. & Co.).....₩ doz. 75¢

Bellows—

Blacksmith—

Standard List.....70@70&10%
Often sold at net prices:

Inch....	30	32	34	36	38	40
Each....	$3.75	4.00	4.75	5.25	6.00	7.00

Extra Length:
Each....$4.50 5.00 5.50 6.25 7.00 8.50

Moulders—

Inch ...	9	10	11	12	14	16
Per doz.	$6.00	6.50	7.75	8.75	11.00	13.25

Hand—

Inch.....	6	7	8	9	10	12
Per doz....	$3.25	3.50	3.75	4.50	5.25	6.00

Bells—Cow—

Kentucky.....75&10%
Western.....70@70&5%
Jersey.....75&10%
Texas Star.....50&10%

Door—

Gong, Yankee.....60&10%
Lever, R. & E. Mfg. Co.'s.....60&10%
Lever and Pull, Sargent's.....45&10@45&10&5%

Hand—

Hand Bells, Polished.....70@70&5%
White Metal.....70@70&5%
Nickel Plated.....50&10@60%
Swiss.....66⅔&5@66⅔&10%

Miscellaneous—

Farm Bells.....₩ lb 2¢
Steel Alloy Church and School...50&10%

Belting

Rubber—

Common Standard.....75&10@75&10&5%
Extra.....70@70&10%
Standard.....70&10@75%

Leather—

High Grade Oak Tanne.....50&10@50&10&5%
Good Oak Tanned.....60&5@60&10&10%

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—

Bretteli Tire Upsetter, $15.....50%
Green River Tire Benders and Upsetters.....20%
Stoddard's Lightning Tire Upsetters.....40@50%

Bicycle Goods—

Lane's Cycle Hanger.....33⅓&5%
Jo.n S. Leng's Son's 1899 l st:
Balls.....50%
Cha n.....50%
Parts.....50%
Spokes.....50&10%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Bit Holders—See *Holders.*

Blind Adjusters—See *Adjusters, Blind.*

Blind Fasteners—See *Fasteners, Blind.*

Blind Staples—See *Staples, Blind.*

Blocks—

Common Jap'd Sheaves.....75@75&5%
Eddy's All Steel, Common Bushed....70%
Eddy's All Steel, Bronze Bushed...60&5%
Hartz All Steel, Common Bushed.50&10%
Hartz All Steel, Bronze Bushed..50&10%
Ford's Star Brand, Self Lubricating..70%
Hollow Steel, Ford's Pat. Star Brand.....50&10%
Lane's Pat. Adj., Perfect Safety and Junior.....30%
Stowell's Novelty, Mal. Iron.....50&10%
See also *Machines, Hoisting.*

Boards Stove—

Market somewhat irregular.
Manufacturers quote.....80&10@40%
Jobbers often sell.....40&10@50%

Bolts—

Carriage, Machine, &c.—

Common, list Jan. 30, '95.....70&10@75&5%
Norway Iron, $3.00, list Oct. 7, '84.....75&10@75&10&5%
Phila. Eagle, $3.00 list.....85&15%
Bolt Ends, list Jan. 30, '95.....70&10@70&10&5%
Machine list June 12, '96.....70&10&10@75&10%

Door and Shutter—

Cast Iron Barrel, Round Brass Knob:

Inch	3	4	5	6	8
Per doz....	$0.27	.30	.38	.48	.66

Cast Iron Bottom, Japanned:

Inch..	6	8	10
Per doz....	$0.83	1.05	1.65

Cast Iron Chain, Flat, Japanned:

Inch..	6	8	10
Per doz....	$1.10	1.39	1.87

Cast Iron Shutter, Brass Knobs:

Inch.....	6	8	10
Per doz....	$0.49	.77	.88

Wrought Barrel Brass Knob:

Inch.....	3	4	5	6	8
Per doz....	$0.44	.50	.61	.70	1.28

Ives' Patent Door.....65@65&10%
Wrought Flush—
B. K., Sargent's list.....50&10@60%
B. K., Stanley's list..60&10@60&10&5%
Bunk, Sargent's or Stanley's list.....50&10@50&10&5%
Wrought Shutter, Standard list 60&10&7½@70%
Wrought Square, Standard list 75@75&10%

Stove and Plow—

Plow.....70@70&10%
Stove, list August 27, 1898...70@70&10%

Tire—

Common, list Feb. 28 '83..70@70&10& 5
American Screw Company:
Norway Phila., list Oct. 16, '84..75&10%
Eagle Phila., list Oct. 16, '84....80&10%
Bay State, list Feb. 28, '83.....70%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84. 75&10%
Eagle Phila., list Oct. 16, '84....80&10%
Eclipse, list Feb. 28, '83.....70%
Port Chester Bolt & Nut Company
Empire, list Feb. 28, '83.....70%
Keystone Phila., list Oct. '84....80&10%
Norway Phila., list Oct. '84....75&10%

Borers, Tap—

Borer Tap, Ring, with Handle:

Inch.....	1¼	1½	1¾	2
Per doz.....	$3.75	4.75	5.25	6.75
Inch.....	2¼	2½		
Per doz.....	$8.00	11 00		

Enterprise Mfg. Co.....25@30%
No. 1, $1.25; No. 2, $1.65; No. 3, $4.50 each.

Boring Machines—See *Machines, Boring.*

Bow Pins—See *Pins, Bow.*

Boxes, Letter—

Tatum's.....50%

Braces—

NOTE.—Most Braces are sold at net prices.
Barber's.....60@60&10%
Common Ball, American.....$1.10@1.20
Fray's Genuine Spofford's.....50&10&5%
Fray's No. 70 to 120, 81 to 123, 207 to 414.....50&10&5%
P., S. & W. Co., Peck's Patent.....60&10&5@60&10&10%

Brackets—

Shelf, plain; Regular, list....75@75&10%
Stowell's Shelf.....70&5%
Bradley Shelf Brackets.....80&10%

Bright Wire Goods—See *Wire.*

Broilers—

Wire Goods Co.....75@75&10%

Buckets, Well and Fire—See *Pails*

Bucks, Saw—

Hoosier.....₩ gr. $22.00 @ $24.00

Bull Rings—See *Rings, Bull.*

Butts—Brass—

Cast Brass, Tiebout's.....50%
Wrought Brass, list Sept., 96.....40&5@40&10%

Cast Iron—

Fast Joint, Broad.....60@60&10%
Fast Joint, Narrow...60&10@60&10&10%
Loose Joint.....
Loose Pin.....
Mayer's Hinges.....
Parliament Butts.....
} 75@75&10%

Wrought Steel—

Loose Joint.....
Table and Back Flaps.....
Narrow and Broad.....
Inside Blind.....
Loose Pin.....
Loose Pin, Ball and Steeple Tip.....
} List Apr. 1, 1895 75&10 @75&10&10%
80&5@80&10&5%

Bronzed Wrought Narrow and Inside Blind Butts.....50&10@50&10&5%

Cages, Bird—

Hendryx, Brass:
3000, 5000, 1100 series.....10%
1200 series.....40%
200, 300, 600 and 930 series.40&10&50%
Hendryx Bronze:
700, 800 series.....40&10@50%
Hendryx Enameled.....40&10@50%

Calipers—See *Compasses.*

Calks, Toe—

Burke's, One Prong, Blunt.....4@4¼¢
Burke's, One Prong, Sharp.....5@5¼¢
Burke's, Two Prong, Blunt.....5@5¼¢
Burke's, Two Prong, Sharp.....6@6¼¢
Gautier, One Prong, Blunt.....5¼@6¢

Can Openers—See *Openers, Can*

Cans, Milk—

Buffalo Pattern:

	5	8	10 gal.
Concave Cover.....	$1.25	$2.00	$2.20
Convex Cover.....	1.40	2.15	2.35
Illinois Pattern.....	....	1.80	2.00
Iowa Pattern.....	...	1.75	1.95
New York Pattern...	..	2.25	2.45
Baltimore Pattern....	....	2.35	2.55

Chicago S. Co. Seamless Neck.

	5	8	10 ga
Iowa.....	$1.30	$1.50	$1.65 each
Sturges....	1.30	1 50	1.65 each
Elgin.....	....	1.75	1.90 each
Chicago...	1.50	1.90	2.00 each

Cans, Oil—

Galvanized Blue Band, 1-gal., ₩ doz. $1.60@$1.80
S. S. & Co., Galvanized Family with faucet, 3-gal., ₩ gro. $54; 5-gal., $60, 10-gal., $180.00
Glass Oil.....₩ doz. $1.60@$1.85

Caps—Percussion—

Eley's E. B.....50¢
G. D.....₩ M. 32@34¢
F. L.....₩ M. 37@40¢
G. ...₩ M. 47@50¢
Musket.....₩ M. 57@60¢

Primers—

Berdan Primers, $1.00.....2¢
E. L. Caps (Sturtevant Shells) $1.00...2¢
All other primers.....$1.00@$1.10

Carpet Stretchers—See *Stretchers, Carpets.*

Cartridges—

Note.—These prices are sometimes shaded by jobbers.
B. B. Caps, Con. Ball Swgd.....$1.90
B. B. Caps, Round Ball.....$1.12@1.18
Blank Cartridges, except 22 and 32 cal., additional 10% to above discounts.
Blank Cartridges, 22 cal. $1.75.....2%
Blank Cartridges, 32 cal., $3.50.....2%
Cent. Fire, Military and Sporting 15&5&2%
Cent. Fire, Pistol and Rifle.....25&5&2%
Primed Shells and Bullets.....15&5&2%
Rim Fire Cartridges.....50&2%
Rim Fire, Military.....15&5&2%

Carpet Sweepers—See *Sweepers, Carpet.*

Casters—

Bed Plate, etc.....50@70&5%
Martin's Patent (Phoenix)....60@60&5%
Payson's Anti-friction Furniture.....70&10&5%
Payson's Anti-Friction Truck.60&10&5%
Standard Ball Bearing.....50%
Tatum's Anti-friction.....60@60&10%
Tucker's Patent, low list.....50@50&5%

Cattle Leaders—See *Leaders, Cattle.*

Chain—

American Coil, Cask Lots:

3-16	¼	5-16	⅜	7-16	½	9-16
$6.35	4.85	3.95	3.40	3.25	3.15	3.10
⅝	¾	⅞	1 inch.			
$3.00	2.90	2.90	2.80			

For less than Cask lots add 1-10c.
German Coil, list July 24, '97.....60&10&10@70%
German Halter Chain, list July 24, '97 60&10&10&5@70%
Trace, Wagon and Fancy Chains, list revised April, '98.....60&10&10@70%
Breast, Hitching and Rein Chains
Covert Sad. Works.....70%
Covert Mfg. Co.:
Breast.....45&2%
Halter.....45&2%
Heel.....45&2%
Plain.....45&2%
Stallion.....45&2%
Jack Chain, Iron, list July 10, '93.70&10%
Jack Chain, Brass, list July 10, '93.....60@60&10%
Garland's Eureka Weldless Coil.....75%
Garland's Eureka Weldl's Halters 70&10%
Garland's Eureka Weldless Cow Ties 60%
Oneida Halter Chain.....60@60&10%
Gal. Pump Chain.....₩ lb 4@4¼¢

Chalk—(From Jobbers.)

Carpenters', Blue.....₩ gr. 50@52¢
Carpenters', Red.....₩ gr. 45@47¢
Carpenters', White.....₩ gr. 40@42¢
See also *Crayons.*

Chalk Lines—See *Lines.*

Checks, Door—

Bardsley's.....40%
Eclipse.....60@60&10%
Norton.....40@50%

Chisels—

Socket Framing and Firmer

Standard List.....75&10@80%
Buck Bros.....30%
Charles Buck.....30%
Douglass.....75&10@80%
L. & I. J. White.....30@30&5%

Tanged and Miscellaneous.

Buck Bros. 30%
Charles Buck 30%
Tanged Firmers ..... 40&10@50%
L. & I. J. White, Tanged ..... 35&5%
Cold Chisels, good quality ..... ₱ ℔ 14@16¢
Cold Chisels, fair quality ..... ₱ ℔ 12¢
Cold Chisels, ordinary ..... ₱ ℔ 7@7¼¢

Chucks—

Beach Pat., each $8.00 ..... 20%
Graham Patent 33⅓%
Morse's Adjustable, each $7.00 ..... 25%
Syracuse, Balz Pat 30%
Skinner Patent Chucks:
Combination Lathe Chucks 40%
Drill Chucks 30%
Independent Lathe Chucks 40%
Improved Planer Chucks 20%
Universal Lathe Chucks 40%
Union Mfg. Co.:
Combination 10%
Czar Drill 10%
Geared Scroll 33⅓%
Independent 40%
Union Drill 30%
Universal 40%
Face Plate Jaws 35%

Clamps—

Adjustable Cincinnati ..... 25&10%
Adjustable, Hammers' ..... 20@20&5%
Adjustable, Stearns' ..... 30@30&10%
Cabinet, Sargent's ..... 45&10@50&10%
Carriage Makers', P., S. & W. Co.. 40&10%
Carriage Makers', Sargent's ..... 50&10@50&10&5%
Beaver, Parall-l 33⅓%
Cincinnati Carpenters', &c. ..... 25&10%
Joiners' Clamps, Tatum's ..... 25&10%
R. I. Tool Co.'s Wrought Iron 25%
Saw Clamps, see *Vises, Saw Filers'*.
Stearns Malleable, with Wrought Iron Screw ..... 75@75&5%
Stearns Steel ..... 25&10%
Tatum's Joiners' Adjustable ..... 25&10%
Tatum's Quilt, Cabinet, &c. 40%
Warner's ..... 40&10@40&10&5%

Cleaners, Walk—

Star Socket, All Steel ..... ₱ doz. $4.00 net
Star Shank, All Steel ..... ₱ doz. $3.75 net

Cleavers, Butchers'—

Foster Bros., Flat Hds., 30%; Rd. Hds., 40%
New Haven Edge Tool Co.'s 40%
Nichols Bros., Flat hdl., 30%; Rd. hdl., 40%
Fayette R. Plumb ..... 33⅓&7½%
P., S. & W ..... 33⅓&5@33⅓&10%
L. & I. J. White 25%

Clippers—

Chicago Flexible Shaft Company:
Handy Toilet ..... ₱ doz. $7.20
Mascotte Toilet ..... ₱ doz. $8.40
Monitor Toilet ..... ₱ doz. $9.00
Stewart's Patent ..... ₱ doz. $10.00
Hotchkiss Horse Clippers, ₱ doz.: No. 10, $18; No. 30, $15.60; No. 22, $13.60; No. 20, $13.20; No. 8, $10.80.
Hotchkiss Toilet Clippers, ₱ doz.: No. 1, $9.60; No. 101, $10.80; No. 201, $10.80; No. 300, $13.20; No. 500, $15.

Clips, Axle—

Eagle and Superior ¼ and 5-16 inch .. 75&10@75&10&5%
Norway, ¼ and 5-16 inch ..... 75@75&5%

Cloth and Netting, Wire

—*See Wire, &c.*

Cocks, Brass—

Hardware list (Globe, Kerosene, Lever Bibbs, Racking, &c.) ..... 70@70&5%

Coffee Mills—See *Mills, Coffee.*

Collars, Dog—

Brass, Pope & Stevens' list 40%
Chapman Mfg. Company, new list 40%
Embossed, Gilt, Pope & Stevens' list 30&10%
Leather, Pope & Stevens' list 40%

Combs, Curry—

Hotchkiss', List Nov. 20, '96 ..... 25&10%
New Centaur Spring Curry Comb:
With Wire Handle ..... ₱ doz. $1 20
With Strap Handle ..... ₱ doz. $1 60

Compasses, Dividers, &c.

Ordinary Goods ..... 70&10@75%
Bemis & Call Hdw. & Tool Co.:
Dividers 65%
Calipers, Call's Patent Inside 55%
Calipers, Double 70%
Calipers, Inside or Outside 70%
Calipers, Wing 60%
Compasses ..... 50&5%
J. Stevens A. & T. Co ..... 25&10%

Coolers, Water—

B. S. & Co.: 2-gal., $2.70; 3-gal., $3.20; 4-gal., $3.60; 6-gal., $4.75; 8-gal., $7.20; 11-gal., $11; 14-gal., $14 each 60%

Coopers' Tools—

See *Tools, Coopers'.*

Cord— Sash—

Braided, Drab and Fancy, ₱ ℔ 25¢ ..... 30@30&10%
Braided, White, ₱ ℔ ..... 14@15¢
Cable Laid Italian ..... ₱ ℔ A, 18¢; b, 16¢
Common India ..... ₱ ℔ 8½@9¢
Cotton Sash Cord, twisted ..... 12@14¢
Patent Russia ..... ₱ ℔ 12½@13¢
Cable Laid Russia ..... ₱ ℔ 13½@14¢
India Hemp, Braided ..... ₱ ℔ 11@12¢
India Hemp ..... ₱ ℔ 9@10¢
Patent India ..... ₱ ℔ 10½¢
Pearl Braided, cotton ..... ₱ ℔ 16¢
Massachusetts, White ..... 17¢
Eddystone Braided Cotton ..... ₱ ℔ 16¢
Harmony Cable Laid Italian ..... ₱ ℔ 18¢
Ostrawan Mills:
Crown, Solid Braided White ..... ₱ ℔ 18¢
Braided, Giant, White ..... ₱ ℔ 16¢
Peerless:
Cable Laid Italian ..... 16¢
Cable Laid Russian ..... 13¢
Cable Laid India ..... 11¢
Braided India ..... 18¢
Samson:
Braided, Drab Cotton ..... ₱ ℔ 33@33¢
Braided, Italian Hemp ..... ₱ ℔ 31@33¢
Braided, Linen ..... ₱ ℔ 53@56¢
Braided, White Cotton ..... ₱ ℔ 27@30¢
Silver Lake:
A quality, Drab, 40¢ ..... 15&7½%
A quality, White, 35¢ ..... 15&7½%
B quality, Drab, 35¢ ..... 15&7½%
B quality, White, 30¢ ..... 15&7½%
Italian Hemp, 40¢ ..... 15&7½%
Linen, 57½¢ ..... 15&7½%

Wire, Picture—

Braided or Twisted ..... 85@85&5%

Corn Knives and Cutters

—See *Knives, Corn.*

Crackers, Nut—

Acme, Japanned, ₱ gr. $30 ..... 40%
Acme, Nickel Plated, ₱ gr. $30 ..... 20¢
Turner & Seymour Mfg. Co. 50%

Cradles—

Grain 55%

Crayons—

White Round Crayons, ₱ gross ..... 5@6¢
Cases, 100 gr., $4.50@$5.00, at factory.
D. M. Steward Mfg. Co.:
Metal Workers', ₱ gr. $2.50 ..... 20@25%
Railroad, ₱ gr. $2.00 ..... 20@25%
Rolling Mill, ₱ gr. $2.50 ..... 20@25%
Soapstone Pencils, ₱ gr. $1.50 .. 20@25%
See also *Chalk.*

Creamery Pails—See *Pails, Creamery.*

Crooks, Shepherds'—

Fort Madison, Heavy ..... ₱ doz. $7.00
Fort Madison, Light ..... ₱ doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—

Victor Garden ..... ₱ doz. $10.00

Curry Combs—

See *Combs, Curry.*

Cutters— Meat—

American 30%

Nos.	1	2	3	4	B	5
Each	$5	$7	$10	$25	$50	$60

Connecticut, No. 0, $2.00; No. 1, $2.50; No. 8, $3.00; No. 12, $3.50 ..... 33⅓%
Enterprise ..... 25@25&7½%

Nos.	5	10	12	22	32
Each	$3	$3	$3.50	$4	$6

Dixon's, ₱ doz. 33⅓%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Hale's, ₱ doz. ..... 70@70&5%

Nos.	11	12	13
	$27.00	$33.00	$45.00

Home No. 1, ₱ doz. $26.00 ..... 60%
Little Giant, ₱ doz. ..... 50&10%

Nos.	305	310	312	320	322
	$35.00	$48.00	$44.00	$72.00	$68.00

Miles' Challenge, ₱ doz. ..... 45@45&10%

Nos.	1	2	3
	$22.00	$30.00	$40.00

New Triumph No. 605, ₱ doz. $24.00 .. 33⅓&5%
Woodruff's, ₱ doz 33⅓%

Nos.	100	150
	$15.00	$18.00

Chadborn's Smoked Beef Cutter, ₱ doz. $60.00
Enterprise Beef Shavers ..... 25@30%

Slaw and Kraut—

Henry Disston & Son:
Slaw, Cabbage Grater, &c. 40%
Crout Cutter 24 x 7, 26 x 8, 30 x 9.. 55%
Crout Cutters 36 x 12, 40 x 12 ..... 40%
Tucker & Dorsey Mfg. Co.:
Kraut Cutters ..... 50@50&10%
Slaw Cutters, 1 Knife, ₱ gr. ..... $15@$18
Slaw Cutters, 2 Knife, ₱ gr. ..... $20@$27

Tobacco—

All Iron, Cheap ..... ₱ doz. $4.50@5.00
Enterprise ..... 25@30%
National, ₱ doz. $21.00 ..... 30&5%
Sargent's, ₱ doz. $24.00 ..... 60@60&10%

Washer—

Appleton's, ₱ doz. $16.00 ..... 60&10@60&10&10%
Bonney's ..... ₱ doz. $4.25
Cincinnati ..... 25&10%
Tatum's ..... 25&10%

Diggers, Post Hole, &c.—

Gem, Improved ..... ₱ doz. $8.50@$9.00
Iwan's Improved Post Hole Auger. 40&5%
Iwan's Perfection Post Hole Digger, ₱ doz. $10.00
Samson, ₱ doz. $34.00 ..... 25%
Vaughan's Post Hole Auger, ₱ doz. $4.75@5.25

Dividers—See *Compasses.*

Dog Collars—See *Collars, Dog.*

Door Checks—

See *Checks, Door.*

Door Springs—

See *Springs, Door.*

Drawers, Money—

Tucker' Pat. Alarm Till No. 1, ₱ doz. $18; No. 2, $12; No. 3, $11; No. 4, $12.

Drawing Knives—

See *Knives, Drawing.*

Drills and Drill Stocks—

Common Blacksmith's Drill.. each $1.50
Bench Drills, Stearns' ..... 50@50&10%
Blacksmiths' Self-feeding, each $7.50, 20%
Breast, Millers Falls, each $3.00 ..... 25%
Breast, P., S. & W ..... 40&10%
Goodell Automatic Drills.. 40&5%40&10%
Ratchet, Bignall & Keeler ..... 30&5%
Ratchet, Curtis & Curtis 25%
Ratchet, Ingersoll's 25%
Ratchet, Parker's 40%
Ratchet, Weston's ..... 20@25%
Ratchet, Whitney's ..... 20&10%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 10, $12.00 ..... 33⅓%

Twist Drills—

Standard List ..... 60&10&10&70%

Drill Bits or Bit Stock

Drills—See *Augers and Bits.*

Drill Chucks—See *Chucks.*

Dripping Pans—

See *Pans, Dripping.*

Drivers, Screw—

Balsey's Screw Holder and Driver, ₱ doz. 2¼-inch, $6; 4-in., $7.50 6-in., $9.. 40%
Brace Screw Drivers ..... 25&10&5%
Buck Bros. 30%
Buck Bros' Screw Driver Bits 27½%
Champion ..... 40&10%
Disston's Flat Blade, Electric, &c. 70%
Douglass Mfg. Co. ..... 20@20&10%
Electric Spiral ..... 50&10&10&5%
Ellrich's Socket ..... 40&10%
Fray's Hol. H'dle Sets, No. 3, $12.00 50%
Gay & Parsons' Ratchet 35%
Goodell's Automatic ..... 50&10&10@50&10&10&5%
Hercules, W. & B. ..... 70@75%
Howard-Allard Spiral ..... 50&10&10&5%
Jones Reversible 50%
Knapp & Cowles:
Nos. 1 and 2 ..... 70&10%
No. 3 ..... 60&10%
Nos. 4 and 00, Acme and Ideal.. 60&10%
Mayhew's Black Handle 50%
Mayhew's Monarch ..... 45&10%
New England Specialty Co. ..... 50&10%
New York, Manhattan and Handy.. 20%
Sargent & Co.'s:
Nos. 1, 20, 40 and 60.. 50&10@50&10&5%
Nos. 50 and 55 ..... 50&10&10@60&5%
Screw Driver Bits ..... ₱ doz. 50@70¢
Stanley's R. & L. Co.'s:
No. 64, Varnished Handles ..... 70&10%
No. 86 ..... 75&10%
Syracuse Screw Driver Bits 40%

Egg Beaters—See *Beaters, Egg.*

Emery—No. 4 to No. 54 to Flour, CF

	46 gr.	1.80 gr.	F.FF.
Kegs, ₱ ℔	4½¢	5 ¢	3 ¢
½ kegs, ₱ ℔	4¾¢	5¼¢	3¼¢
¼ kegs, ₱ ℔	5 ¢	5½¢	3½¢
10-℔ cans, 10 in case	6 ¢	6½¢	5½¢
10℔ cans, less than 10	10 ¢	10¢	8 ¢

Enameled and Tinned Ware—See *Ware, Hollow.*

Escutcheon Pins—

See *Pins, Escutcheon.*

Extractors, Lemon Juice

—See *Squeezers, Lemon.*

Fasteners, Blind—

Zimmerman's ..... 50&10%

Faucets—

B. & L. B. Co.:
West's Lock, Open and Shut Key 50&10%
Burnside's Red Cedar 50%
Burnside's Red Cedar, bbl. lots.. 50&10%
Cork Lined ..... 70&5@70&10%
Metallic Key, Leather Lined.. 65&10@65&10&10%
John Sommer's Peerless Tin Key 40%
John Sommer's Boss Tin Key 50%
John Sommer's No Brand Metal Key. 60%
John Sommer's W. P. Metal Key 40%
John Sommer's Diamond Lock 40%
John Sommer's I. X. L. Cork Lined.. 50%
John Sommer's Reliable Cork Lined. 60%
John Sommer's Common Cork Lined. 70%
John Sommer's Chicago Cork Lined.. 60%
John Sommer's O. K. Cork Lined 50%
John Sommer's Perfection Cedar.... 40%
John Sommer's Cedar (in bbls.).. 50&10%
Star ..... 60@60&5%
Star, Metal Plug, new list ..... 40@40&5%
Stearns' Wood, No. 200, Wood-lined Key ..... 50&10%
Stearns' Matchless, Wood, No. 300.. 60%
Stearns' Gem, Wood, No. 400 ..... 60&10%
Lockport, Metal Plug, reduced list. 60&5%
Self Measuring:
Enterprise, ₱ doz. $36.00 ..... 40%
Lane's, ₱ doz. $36.00 ..... 33⅓%
National Measuring, ₱ doz. $36.00. 33⅓%

Felloe Plates—

See *Plates, Felloe.*

Fifth Wheels—

Brewster ..... 75&10@80%
Derby and Cincinnati ..... 70&10@75%

Files—Domestic—

Best Brands ..... 70@70&10&10%
Good Brands ..... 75&10@80&5%
Fair Brands ..... 80&5@80&10%
Second Quality ..... 80&10@85%

Imported—

Stubs' Tapers Stubs' list, July 24, '97. 30@33⅓%

Fixtures, Grindstone—

Net prices:

Inch	15	17	19	21	24
Per doz.	$2.50	2.60	2.95	3 35	4.50

Stowell's Grant Grindstone Hanger, ₱ doz. $6.00@7.00
Stowell' Grindstone Fixtures.. 55&10%
P., S. & W. Co. ..... 50&10&10%
Reading Hardware Co. ..... 30&20&10%
Sargent's Patent ..... 70&10@70&10&10%

Fluting Machines—

See *Machines, Fluting.*

Fodder Squeezers—

See *Squeezers, Fodder.*

Forks—

Note.—There is no uniformity in list prices for Steel Goods, the old or 1895 list being often used, discount 60&10@60&10&5%.

Hay, 2 tine	70&2%
Hay, 3 tine	70&2%
Manure, 4 tine	60&2½&20&2%
Manure, 5 and 6 tine	70&10&2%
Spading	70&10&2%
Victor, Hay	60&33⅓&2½&2%
Victor, Manure	77 ½&2%
Victor, Header	70&12½&2%
Champion, Hay	70&10&2%
Champion, Manure	75&2%
Columbia, Hay	70&7½&2%
Columbia, Manure	75&2&2%
Columbia, Spading	66⅔&25&2%
Hawkeye Wood Barley 4 tine ₱ doz $5.00; 6 tine, $5.50.	

1899 or high list.

Plated see *Spoons.*

Frames—

Saw—

Red, Polished and Varnished ..... ₱ doz. $1.00@$1.10
White ..... ₱ gro. $8.25@$8.50

Screens, Window and Door—

Bonanza Window Screens ..... 60@60&5%
Flyer Window Screens ..... 50&10&5%
Maine Window Screen Frames 50%
Perfection Window Screens.. 60&50&5%
Phillips' Window Screen Frames.. 60&5%
Porter's Extension Window Screens.. 60&5%
Stearns' Frames and Corners 25@25&10%
Stearns' Monarch Adjustable Window Screens 50%
Stearns' Gem Window Screen Frames. 25&10%
Wabash Adj. Window Screen 50%
Warner's Screen Corner Irons.. 33⅓&10%

Freezers Ice Cream—

Qts.	2	3	4	6	8	10
Best	$1.40	1.60	1.85	2.30	3.00	3.90
Good	1.25	1.35	1.70	2.05	2.65	3.50
Fair	1 00	1.10	1.30	1.75	2.30	2.90

Fruit and Jelly Presses—

See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Funnels—

Gersdorff's Perfection, Standard and Globe; 1 to 3 gro., 10&5%; 3 to 5 gro., 20&5%.

Fuse—

	Per 1000 feet.
Hemp Fuse	$2.60
Cotton Fuse	2.90
Single Taped Fuse	3.50
Double Taped Fuse	4.70
Triple Taped Fuse	5.70

10%

Gates, Molasses—

Stearns' Molasses and Oil ..... 80&10%
Stebbin's ..... 80&20@85%

Gauges—

Barrett's Comb. Roller Gauge ..... ₱ doz. $6.75@7.25
Marking, Mortise, &c. 60&10@60&10&10%
Stanley R. & L. Co.'s Butt & Rabbet Gauge ..... 35&10%
Wire, Brown & Sharpe's 25%
Wire, Morse's 25%
Wire, P. S. & W. Co. ..... 10&10%
Wire, Wheeler, Madden & Co. 10%

Gimlets—

Nail, Metal, Assorted ..... ₱ gr. $2.00@$2.50
Spike, Metal, Assorted, ₱ gr. $3.75@$4.00
Nail, Wood Handled, Assrt'd. ₱ gr. $4.80
Spike, Wood Handled, Assrt'd. ₱ gr. $4.90

Glue—Liquid, Fish—

Glues: A, Bottles or Cans, with brush ..... 37½@40%
List ₱ Cans (½ pts., pts, qts.) ..... 33⅓@50%
List C Cans (½ gal., gal.) ..... 25@45%

Glue Pots—See *Pots, Glue.*

Grease, Axle—

Allerton's Axle:
1℔ Tins, ₱ gr. $9.00
3 ℔ Tin Pails, ₱ doz., $2.00; 5 ℔, $3.00; 10 ℔, $5.00.
25 ℔ wood pails ..... ₱ doz. $12.00
Dixon's Everlasting.. 10-℔ pails, ea. 85¢
Dixon's Everlasting, in bxs. ₱ doz. 1 ℔ $1.20; 3 ℔ $2.00
Lower grades, special brands, ₱ gr. $5.00@6.50

Grindstone Fixtures—

See *Fixtures, Grindstone.*

Gun Powder—See *Powder.*

Hack Saws—See *Saws.*

Hafts, Awl—

Peg Patent, Leather Top ..... ₱ gr. $4.50@$4.75
Peg Patent, Plain Top, ₱ gr. $3.50@$4.00
Swing, Brass Ferrule ..... ₱ gr. $1.50
Saddlers', Brass Ferrule ..... ₱ gr. $1.35
Peg, Common ..... ₱ gr. $1.25
Brad, Common ..... ₱ gr. $1.35

Halters and Ties—

Covert Mfg. Co., Web and Rope.. 45&2%
Covert's Saddlery Works, 90 list 70%

Hammers—

Handled Hammers—

Heller's Machinists' ..... 40@40&5%
Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75 ..... 40&10%
Peen, Stow & Wilcox ..... 40@40&5%
Fayette R. Plumb:
Artisans' Choice, A. E. Nail.. 40&12½%
Engineers' and B. S. Hand 60%
Machinists' Hammers 60%
A. E. & A. E., Bell Face Nail.. 40&12½%
Other Nail Hammers 50%
Sargent's C. S. New List ..... 45@50%

Heavy Hammers and Sledges—

3 ℔ and under.....℔ ℔ 45¢ }
3 to 5 ℔.....℔ ℔ 36¢ } 80@
Over 5 ℔.....℔ ℔ 30¢ } 80&10%
Wilkinson's Smiths'.....9½¢@10¢ ℔ ℔

Handcuffs and Leg Irons

See *Police Goods.*

Handles—

Agricultural Tool Handles—

Hoe, Rake, Fork, &c...60&10@60&10&5%
Shovel, &c., Wood D Handle.....60&10%

Cross-Cut Saw Handles—

Atkins'.....40%
Champion.....45@45&10%
Disston's.....50%
Ely's Perfection.....℔ doz. $3.00

Mechanics' Tool Handles—

Auger, assorted.....℔ gr. $2.25@$2.50
Auger, large.....℔ gr. $2.75@$3.00
Brad Awl.....℔ gr. $1.40@$1.50
Chisel, Tang:
Apple, assorted.....℔ gro. $2.25@2.50
Apple, assorted, large.. ℔ gro. $2.75@3.00
Hickory, assorted....℔ gro. $2.25@2.50
Hickory, assorted, large.....
℔ gro. $2.50@2.75
Chisel, Socket:
Firmer, assorted.....℔ gro. $1.50@1.60
Framing, ass't'd large. ℔ gro $2.50@2.75
File, assorted.....℔ gr. $1.00@$1.25
Hammer, Hatchet, Axe, &c.....50&10%
Hand Saw, Varnished, ℔ doz. 75¢@80¢; not Varnished.....55@60¢
Plane Handles:
Jack, ℔ doz. 23@25¢; Jack Bolted....
55@60¢
Fore, ℔ doz. 35@38¢; Fore, Bolted...
70@75¢

Hangers—

Barn Door, New Pattern, Round Groove, Regular:

Inch.....	3	4	5	6	8
℔ doz....	$1.28	1.68	2.16	2.64	3.30

Barn Door, New England Pattern, Check Back, Round Groove, Regular:

Inch.....	3	4	5	6
℔ doz....	$2.86	3 74	4.84	6 16

Bigelow & Dowse Co.:
Paragon, No. 1, $3.50; No. 2, $4.50; No. 3, $5.50 ℔ doz.
Chicago Spring Butt Co.:
Friction.....35@35&10%
Oscillating.....35@35&10%
Big Twin.....35@35&10%
Chisholm & Moore Mfg. Co.:
Advance.....60&10%
Cleveland.....60&10%
Baggage Car Door.....50%
Elevator.....40%
Railroad.....55%
Cronk Hanger Co.:
Roller Bearing.....70%
Steel Covered.....60&10%
Lane Bros.:
Parlor, Standard.....40&10%
Barn Door, Standard.....60&10%
Covered.....60&10%
Cycle, ℔ doz. $12.00.....33⅓&5%
No. 50.....60&5%
Parlor Door, New Model.....40&5%
Lawrence Bros.:
Crown.....60&10%
New York.....60&10@60&10&5%
Sterling.....60&10%
McKinney Mfg. Co.:
No. 2, Standard, $18.....60&10%
No. 1, Special, $13.....60&10%
E. C. Stearns & Co.:
Davis Parlor Door.....50@50&5%
Gem Parlor Sliding Door....50&10%
Challenge.....50@50&5%
Steel Single Track Parlor, $6....50%
Royal Parlor Door.....50%
Warner's Pat.....20&10&10%
Warner's Imp'd Single.....40&10%
Stowell Mfg. and Foundry Co.:
Badger.....60&10%
Baggage Car Door.....33⅓&5
Climax Anti-Friction.....55&5%
Elevator.....40%
Interstate.....60&15%
Magic.....50&10%
Matchless.....60&10%
Nansen.....60&10%
Parlor Door.....30&10%
Railroad.....55&5%
Street Car Door.....50&10%
Steel, Nos. 300, 400, 500.....45&15%
Wild West.....50&5%
Zenith for Wood Track.....55&5%
Taylor & Boggis Foundry Co.:
Kidder's.....50@50&10%
Terry Mfg. Co.:
Ideal.....70%
Modern.....70%
Modern, Covered.....70%
Safety.....70%
Shield.....70%
Solid.....70%
Wrought.....70%
Van Wagoner & Williams Hdw Co.:
American Trackless.....33⅓&10%
Wilcox Mfg. Co.:
Aurora Steel Endless.....60%
Bike Roller Bearing....60&10&10%
Bike Steel Endless.....60&10&10%
C. J. Roller Bearing.....60&10&10%
Cycle Ball Bearing.....50&10%
Dye Steel.....60&10%
Economical Single Track 50&10&5%
L. T. Roller Bearing.....70%
New Era.....50&10%
New Richards.....60%
O. K. Roller Bearing.....70%
Prindle Improved.....60&10%
Richards' Improved.....60&10%
Richards' Single Track.....50&10%
Wilcox Dwarf Roller Bearing.....
40&10%
Wilcox-Ives.....60&10%
Wilcox Tandem Roller Bearing...
60&10%
Wilcox Trolley Ball Bearing.....
40&10%
Wilcox Trolley Roller Bearing..50%
Wilcox Trolley Roller Bearing, Fire.....40&10%
Wood Track.....60%

Extra 5@10% often given.

Harness Menders—See *Menders.*

Harness Snaps—See *Snaps.*

Hasps—

McKinney's Perfect Hasp, ℔ doz. $1.10
40&10%
Wrought Hasps, Staples, &c.—See *Wrought Goods.*

Hatchets—

Blood's, Hunt's, Plumb's, Underhill's, etc.....40&13⅓@50&5%
Cheaper Brands.....50&10@60%

Hay and Straw Knives—See *Knives.*

Hinges—

Blind Hinges—

Lull & Porter:

No.	1	1½	2	2½
Per doz. pair....	$0.47	.43	.40	.35

1868 Old Pattern:

No.	1	3	5
Per doz. pair.....	$0.55	1.00	2.00

Clark Mfg. Co.:
No. 1 Blind Hinge, Old Pattern, "Special,".....80&10&5%
No. 1 Blind Hinge, "Diamond" (with tip).....80&10&5%
No. 1 Blind Hinge "Cottage" (with tip).....80&10&5%
Nos. 1, 3, 5 Blind Hinges, regular 1668 old Pattern.....80&10%
Nos. 1, 3, 5 Blind Hinges, "Victor" (with double tip).....80&10%
No. 50 Blind Hinge, both "Noiseless" and "Empire".....80%
No. 40—60—65 Blind.....80%
Lull & Porter Old Style Shutter.80&10%
Dixie, L. & P. Shutter.....80&10%
Buffalo Reversible Shutter.....80&10%
Mortise Gravity Blind.....50%
Huffer.....50&10&10@60%
Parker.....75&10@75&10&5%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Reading's Gravity.....75&10%
Sargent's, Nos. 1, 3, 5, 11, 13..75@75&10%
Wrightsville H'dware Co.:
Acme, Lull & Porter.....80&10%
Buffalo Gravity Locking, Nos. 1, 3 and 5.....80&10&5%
Champion Gravity Locking, No. 75.....
80&10&10%
1868, Old Pat'n, Nos. 1, 3 & 5...80&10%
Tip Pattern, Nos. 1, 3 and 5..80&10&5%
Double Locking, Nos. 20 and 25....75%
Empire, Nos. 101 and 103.....80%
Niagara Gravity Locking, Nos. 1, 3 and 5.....80&10%
Noiseless, Nos. 50, 60, 65 and 55....80%
O. S. Lull & Porter.....80&10&5%
Pioneer, Nos. 060, 45 and 5½....75&5%
Steamboat Gravity Locking, No. 10..
60&10&5%
Stanley's Steel Gravity Blind Hinges, ℔ doz. sets $1.30.....40&10%

Gate Hinges—

Clark's or Shepard's—Per doz. Sets:

No.	1	2	3
Hinges with Latches.	$1.40	1.75	3.25
Hinge Only.....	0.92	1.40	2.40
Latches only.....	0.46	.48	.80

New England:
With Latch.....℔ doz. $1.45@1.50
Without Latch.....℔ doz. $1.30@1.35
Reversible Self Closing:
With Latch.....℔ doz. $1.70@1.75
Without Latch.....℔ doz. $1.30@1.35
Western:
With Latch.....℔ doz. $1.75@1.80
Without Latch.....℔ doz. $0.75@0.78

Spring Hinges—

Holdback, Cast Iron, ℔ gro. $15.00..
50@50&5%
Non-Holdback, Cast Iron, ℔ gro.....
$5.50@$5.75

J. Bardsley:
Bardsley's Patent Checking.....15%
Bommer Bros.:
Bommer's.....40%
Chicago Spring Butt Co.:
Chicago.....30%
Garden City Engine House..30%
Keene's Saloon Door.....30%
Lawson Mfg. Co.:
Machine.....25%
Matchless Pivot.....40%
Payson Mfg. Co.:
Oblique, Dbl. Acting.....50@50&5%
E. C. Stearns & Co.:
Nos 45 and 51.....70%
Stover Mfg. Co.:
Ideal, No. 16, Detachable, ℔ gr.....
$2.50
Ideal, No. 4.....℔ gr. $9.00
New Idea No. 1.....℔ gr. $9.00
New Idea, Double Acting.....45%
Van Wagoner & Williams Hdw. Co.:
Acme.....30&5%
American.....30%
Columbia, No. 14.....℔ gr. $8.00
Columbia, No. 18.....℔ gr. $24.00
Crown.....30%
Gem.....30%
Knoxall.....℔ gr. $9.00
Oxford.....30%

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—

Strap and T Hinges, &c., list Mar. 15, 1893:
Light Strap Hinges..75, 10&5%
Heavy Strap Hinges..80&10%
Light T Hinges.....70%
Heavy T Hinges.....75&5%
Extra Heavy T Hinges....80%
Extra 20@25%
Plate Hinges, 6 to 12 in. ℔ ℔ 5¢
Providence..... 14 to 36 in. ℔ ℔ 4¢
Rolled Blind Hinges, Nos. 32 and 34.....
50&10@50&10&5%
Rolled Plate.....70&10@70&10&5%
Screw Hook and Strap. 6 to 12 in....℔ ℔ 3 @3½¢
14 to 20 in....℔ ℔ 2½@3 ¢
22 to 36 in....℔ ℔ 2½@2½¢
Screw Hook and Eye:
⅝ to 1 in. diam.....℔ ℔ 4½@4½¢
1¼ in diam.....℔ ℔ 5½@5½¢
1½ in. diam.....℔ ℔ 7½@7½¢

Hoes—

Eye—

D. & H. Scovil.....35@35&5%
Scovil and Oval Pattern.....60@60&10%
Grub, list Feb. 23, 1899.....70&10@75%

Handled—

Often sold from 1895 or old list:
Planter's, Cotton, Field, &c..60&10&3%

1898 *or High List.*

Field and Garden.....60&40&5&2%
Ladies', Boys', Toy and Onion 75&12½&2%
Street and Mortar.....75&15&2%
Cotton.....75&10&2½&2%
Planters'.....75&16⅔&2%
Weeding.....75&10&5&2%
Ft. Madison Crucible Garden Hoe.....
75&10&2%
Ft. Madison Crescent Cultivator Hoe, per doz.....$3.75
Ft. Madison Mattock Hoe, ℔ doz....$4.00
Ft. Madison Sprouting Hoe, ℔ doz..$4.50
Ft. Madison Dixie Tobacco Hoe.....
75&16⅔&2%
Kretsinger's Cut Easy, per doz.....$4.50
Warren Hoe.....60&10%

Hog Rings and Ringers—

See *Rings and Ringers.*

Hoisting Apparatus—

See *Machines, Hoisting.*

Hollow Ware—

See *Ware, Hollow.*

Holders—Bag—

Sensible Bag and Twine.....50%

Bit—

Angular, ℔ doz. $24.00..... 45&10%
Extension.
Barber's, ℔ doz. $15.00..... 45&10%

File and Tool—

Nicholson File Holders and File Handles..... ...33⅓%

Hooks—

Cast Iron—

Bird Cage, Reading..... } 60&10&10@
Bird Cage, Sargent's List. } 70%
Clothes Line, Sargent's List.....50&10%
Ceiling, Sargent's List.....50&10%
Clothes Line, Stowell's..... 70&5%
Clothes Line, Reading List.....
65&10@65&10&10%
Coat and Hat, Stowell's..... 70&5%
Coat and Hat, Reading 60&10@60&10&10%
Coat and Hat, Sargent's List.....50&10%
Coat and Hat, Wrightsville list...70&10%
Harness, Reading List.....70&10@75%

Wire—

Atlas, Coat and Hat.....50@50&10%
Belt.....80&10@80&20%
Buffalo Belt Fasteners.....40%
Wire Coat and Hat:
Acme.....60@60&5%
B. B.....70@70&5%
Gem.....66⅔%
Bright Wire Goods—See *Wire.*

Wrought Iron—

Box, or Case, Octagon Steel..
℔ doz. $2.00@2.15
Cotton.....℔ doz. $1.00@1.10
Picture, T. & S. Mfg. Co.....75%
Tassel, T. & S. Mfg. Co.....50&10%
Wrought Staples, Hooks, &c.—See *Wrought Goods.*

Miscellaneous—

Bush, Light, ℔ doz. $5.00; Medium, $5.50; Heavy, $6.00
Covert Saddlery Works' Self Locking Gate and Door Hook, 4 in. ℔ gross $13.00; 6 in. $17.20.....70%
Crown Pictures.....60%
Fish Hooks, American.....60@60&10%

Grass.....No.	1	2	3	4
Bass.....	$1.60	1.75	2.00	
Common.....	$1.50	1.50	1.50	1.75

Potato and Manure.....75&15%
Hooks and Eyes—Brass.....70&10@75%
Hooks and Eyes—Malleable Iron..75&10%
Whiffletree, ℔ ℔.....4¾¢
Bench Hooks—See *Bench Stops.*
Corn Hooks—*See Knives, Corn.*

Horse Nails—See *Nails, Horse.*

Horseshoes—

See *Shoes, Horse.*

Hose, Rubber—

Garden Hose, ¾-inch:
Competition.....℔ ft. 4@4½¢
3-ply Standard.....℔ ft. 5½¢
4-ply Standard.....℔ ft. 6½¢
3-ply extra.....℔ ft. 6½¢
4-ply extra.....℔ ft. 7½¢
High Grade.....℔ ft. 8½@9½¢
Cotton Garden, ¾ in., coupled:
Fair quality.....℔ ft. 7¢
Good quality.....℔ ft. 8¢

Irons—

Sad—

From 4 to 10.....℔ ℔ 2.25@2.50¢
B. B. Sad Irons.....℔ ℔ 2¾¢
Chinese Laundry.....℔ ℔ 4¼@4½¢
Chinese Sad.....3½¢
Crown Improved, Pol., ℔ doz. $6.25; Nickel, $6.75
Troy Pol. Irons.....℔ doz. $2.50
Mrs. Potts', per set:

No. 50	55	60	65
68¢	66¢	73@76¢	69@72¢

New England Pressing.....℔ ℔ 3¢
Sensible Sad Irons, Pol., ℔ doz. $6.25; Nickel, $6.75.

Soldering—

Soldering Coppers.....℔ ℔ 21@25¢
Covert Mfg. Co..... 35&2%

Pinking—

Pinking Irons.....℔ doz. 55@60¢

Jack Screws—See *Screws.*

Jacks, Wagon—

Covert Mfg. Co., Steel.....45&2%
Daisy, ℔ doz. $12.00.....70%
Lockport.....40@40&10%
Victor, ℔ doz. $20.00.....70%
Lane's Steel.....80%

Kettles—

Brass, Spun, Plain, list Jan. 10, '99.15@20%
Enameled and Tea—See *Ware, Hollow.*

Knife Sharpeners—

See *Sharpeners, Knife.*

Knives—

Butcher, Shoe, &c.—

Dick's Butcher Knives.....40%
Foster Bros.' Butcher, &c.....40%
Nichols' Butcher Knives.....50%
Table and Pocket Cutlery and John Wilson's Butcher Knives—Net prices.
Hay and Straw—See *Hay Knives.*

Corn—

Ft. Madison Cut-Easy, ℔ doz.....$3.25

Drawing—

Standard list.....75&10@80%
Adjustable Handle.....25@33⅓%
Bradley's.....35%
Douglass.....75@75&10%
Watrous.....80&10@40%
L. & I. J. White.....20&5@25%
Cautelo's Folding.....50@50&5%

Hay and Straw—

Blizzard.....$5.50@6.00
Iwan's Sickle Edge.....doz. $10.50
Lightning, from Jobbers.....$5.00@6.00

Mincing—

Buffalo Adjustable, ℔ doz. $3.00.....40%
Knapp & Cowles.....60%
Smith's, ℔ doz., Single, $2; Double, $3
45@50%
Sensible, Nos. 10, 20, 40 and 60.. ....

Miscellaneous—

Farriers'.....℔ doz. $2.00@3.00
Wostenholme's .....℔ doz. $3.00@3 25

Knobs—

Base, 2¼-in., Birch, Rubber tip, ℔ gro. $1.25@1.30
Bardsley's Wood Door, Shutter, &c...15%
Carriage, Jap., ℔ gr. 80¢.....60&10%
Door, Mineral.....℔ doz. 60@62¢
Door, Por. Jap'd.....℔ doz. 65@67¢
Door, Por. Nickel.....℔ doz. $1.70@1.80
Drawer, Porcelain....60&10@60&10&10%
Picture, Sargent's.....70&10%
Shutter, Porcelain.....70&10@75&5%
Yale & Towne Wood, list Dec., '85....40%

Ladies—Melting—

P., S. & W.....35&10@40%
Reading.....50&10%
Sargent's.....60@60&10%

Lanterns—Tubular—

	℔ doz.	
Regular Tubular....	$7.00 }	40&5@40&
Side Lift Tubular...	$7.50 }	10&5%
Square Lift Tubular.	$7.50 }	

Bull's Eye Police—

2¾-inch flash light.....℔ doz. $4.00
3-inch flash light.....℔ doz. $4.50
2¾-inch regular.....℔ doz. $3.60
3-inch regular.....℔ doz. $3.90

Lawn Mowers—

See *Mowers, Lawn.*

Leaders, Cattle—

Covert Mfg. Co.....45&2%
Peck, Stow & W. Co.....66⅔%
Sargent's.....70&10@70&10&10%

Lemon Squeezers—

See *Squeezers, Lemon.*

Lifters, Transom—

Dickson:
3 x 4 ft. x ¼.....℔ 100 $10.00
Other sizes, Iron.....70&10&10%
Other sizes, Brass.....70&10%
Excelsior.....60@60&10%
Payson's:
Solid Grip Nos. 303 and 304, ℔ 100, $11.00
Other sizes.....70&10%

Lines—

Ossawan Mills.
Crown Solid Braided Chalk.....33⅓%
Mason's, No. 0 to No. 5.....33⅓%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ℔ gr.....30%

Wire Clothes..Nos....	18	19	20
100 feet.....	$2.50	2.25	2.00
75 feet.....			$1.50

Locks, &c.—Cabinet—

Cabinet Locks..... 33⅓&2%

Door Locks, Latches, &c.—

[Net prices are very often made on these goods.]

Plate.....33⅓&5%
Reading.....60@60&10%
R. & E. Mfg. Co.....60&10@70%
Sargent & Co.....60&10@60&10&10%
S. B. & Co., Locks, Knobs, &c.40@40&5%

Elevator—

Stowell's.....33⅓&5%

Padlocks—

Wrought Iron, list Dec. 3, '97.75@75&10%
Dog Collar, S. B. Co.....40%
E. T. Fraim:
Cast Iron, Scandinavian.....90&40%
Mal. Iron, 120 line.....90&10%
Mal. Iron, 110 and 125 line.....65%
All others.....50&5%
Scandinavian.....90&40@90&40&10%
S. B. & Co.....40%

Sash, &c.—

Fitch's Patent.....65&10%
Ives' Patent.....65@65&10%
Payson's Perfect.....70%
Payson's Signal.....70&10%
Reading.....60&10&10@70%

Machines—

Boring—

Without Augers.

	Upright.	Angular.
Boss, Carpenters'.	$3.50	
Boss, Ship Bldrs'..	3.75	
Douglas.....	2.50	$3.00
Jennings'.....	2.50	3.00
Millers' Falls.....	.....	5.75
Snell's, Rice's Pat.	2.50	2.75

Fluting—

Crown Jewel, 6 in.....$2.50@2.75

Hoisting—

Moore's Anti-Friction Differential Pulley Block.....30%
Moore's Hand Hoist, with Lock Brake.20%
Maris & Beckley (Teal Patent).....30%
See also *Blocks.*

Washing—

Wayne American, No. 2, ₩ doz. $27.50
Western Star, No. 2, ₩ doz. 27.50
Western Star, No. 3, ₩ doz. 30.00
St. Louis, No. 41, ₩ doz.. 68.00
} Carload lots 10% off, freight allowed.

Mallets—

Hickory.....50@50&10%
Lignumvitæ.....50@50&10%
Tinners', Hickory and Applewood.....
₩ doz....55@60¢
Fiber Head, Stearns'.....25%

Mattocks—

List Feb. 23, 1899.....70@70&10%

Measures—

Peck and Half Peck, See *Ware, Stand- and Fiber.*

Meat Cutters—

See *Cutters, Meat.*

Menders—

Centaur Harness Menders, ₩ doz. $6.00.....20%
Jones' Hose Menders, ₩ doz., ¾ in., 40¢; ⅝ in., 50¢; 1 in., 85¢.....50%
Victor Complete Hose Menders, ₩ doz. $3.50.....25%

Milk Cans—See *Cans, Milk.*

Mills—Coffee—

Box and Side, List, Jan. 1, '88.....
60&10@60&10&10%
Net prices are often made on some goods which are lower than above discounts.
Enterprise Mfg. Co., list Jan. 17, '93..30%
National, list Jan. 1, '94.....30%
Parker's Columbia and Victor....60&10%
Parker's Upright.....30&10@40%
Swift, Lane Bros.....33⅓%

Mincing Knives—

See *Knives, Mincing.*

Molasses Gates—

See *Gates, Molasses.*

Money Drawers—

See *Drawers, Money.*

Mowers, Lawn—

Net prices are very frequently quoted

	10	12	14	16-inch
Cheap.....	$1.65	$1.70	$1.75	$1.80
Medium.....	2.50	2.75	3.00	3.25
High Grade..	3.50	3.75	4.00	4.25
Pennsylvania and Continental.....				

60&10&10%

Philadelphia:
All Styles except A and E.....70&10%
Style A, all Steel.....60&10%
Style E, Low Wheel.....60&10%
Style E, High Wheel.....60&10%
Racine.....60&10&10%

Muzzles—

Safety.....₩ gr. $12.00@$12.50

Nails—

Cut and Wire. See *Trade Report.*
Wire Nails and Brads, Papered. List, May 1, '92.....85@85&5%
Hungarian, Finishing, Upholsterers', &c. See *Tacks.*

Horse—

Nos.	6	7	8	9	10
A. C.....	25¢	23¢	22¢	21¢	21¢

40&10&5%

American.....	9½	9½	9½	9½	9½...net
Ausable.....	28¢	26¢	25¢	24¢	23¢

40&10&10%

Capewell.....	19¢	18¢	17¢	16¢	16¢10&5%
C. B. K.....	25¢	23¢	22¢	21¢	21¢...40%
Champlain...	28¢	26¢	25¢	24¢	23¢

40&5&2%

Clinton Fin...	19¢	17¢	16¢	15¢	14¢30&5%
Maud S.....	25¢	23¢	22¢	21¢	21¢

50&10&5%

Neponset.....	23¢	21¢	20¢	19¢	18¢...40%
Putnam.....	23¢	21¢	20¢	19¢	18¢..33⅓%
Vulcan.....	23¢	21¢	20¢	19¢	18¢...25%

Picture—

Brass Head, Combination list.....60%
Brass Head, Sargent's list.....
70&10@70&10&5%
Porcelain Head, Combination list.50&10%
Porcelain Head, Sargent's list....50&10%
Crown.....50&10%
Niles' Patent.....40&10%

Nippers, See *Pliers and Nippers.*

Nut Crackers—

See *Crackers, Nut.*

Nuts—List Feb. 1, 1899.

Cold Punched. Off list.
Mfrs. or U. S. Standard.

Hexagon, plain.....	$6.20
Square, plain.....	5.90
Square, C. T. & R.....	6.00
Hexagon, C. T. & R.....	6.70

Hot Pressed.
Mfrs., U. S. or Nar. Gauge Standard.

Square.....	$6.20
Hexagon.....	6.90

Oakum—

Best or Government .....₩ ℔ 5¼¢
Navy.....₩ ℔ 4¾¢
U. S. Navy.....₩ ℔ 5¼¢
Plumbers' Spun Navy.....2¾¢
F. o. b New York. In carload lots ¼¢ ₩ ℔ off.

Oil Tanks—See *Tanks, Oil.*

Oilers—

Brass and Copper.....50&10@60%
Zinc and Tin.....75@75&10%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4; No. 3, $4.40 ₩ doz. 20%
Malleable, Hammers' Old Pattern, same list.....50&10%
Wilmot & Hobbs Mfg. Co.....70&10@75%

Openers, Can—

French.....₩ doz. 35¢
Iron Handle.....₩ doz. 60@75¢
Kip Duke, Rogers & Bros.,₩ gro $6 50
National, ₩ gro.....$1.75@$2.00
Sardine Scissors.....₩ doz. $2.00@$2.10
Sprague, Iron or Wood Handles.....
₩ doz. 40@45¢
Stowell's.....75&10%
Streeter's:
Sensible, Japanned.....₩ gr. $3.50
Sensible, Nickel.....₩ gr. $5.50
Surprise.....₩ gr. $2.00
New Sprague, Metallic H'dle ₩ gr. $3.50
New Sprague, Wood H'dle..₩ gr. $4.50

Packing—

Rubber—

Standard, fair quality.....70&10@75%
Inferior quality.....75&10@80%
Extra.....60&5@60&10&5%
Jenkins' Standard, ₩ ℔ 80¢....25@25&5%

Miscellaneous—

American Packing.....9¢ @ 10¢ ₩ ℔
Cotton Packing.....13¢ @ 14¢ ₩ ℔
Italian Packing.....10½¢ @ 11½¢ ₩ ℔
Jute.....5¢ @ 5½¢ ₩ ℔
Russia Packing.....12¢ @ 13¢ ₩ ℔

Pails—

Creamery—

S. S. & Co., with gauges.. No 1 $5.25; No. 2, $5.50 ₩ doz.....15%

Galvanized—

Inch.....	10	12	14
Water, Standard, ₩ gro	$18.00	$21.00	$24.00
Water, Competition ₩ gro.....	$17.00	$19.50	$22.00
Fire, ₩ gro.....	$22 00	$25.00	$28.00
Well, ₩ gro.....	$25.00	$25.00	$27.00

Pans—

Dripping—

Large Sizes.....₩ ℔ 4 @4½¢
Small sizes.....₩ ℔ 4½@4¾¢

Fry—

Standard List.....80@80&10%

No.....	0	2	3	4
₩ doz.	$3.00	$3.75	$4.25	$4.75	$5.25

No.....	5	6	7	8
₩ doz.....	$6.00	$7.00	$8.00	$9.00

Acme Fry Pans.....75@75&10%

Roasting and Baking—

Columbian, S. S. & Co., Nos. 5, ₩ doz., $10; 10, $11.50; 20, $13; 30, $15....60%
Simplex No. 08, ₩ doz. $7.00; No. 09, $8.50.....60%

Paper—

Building Paper—

	Per roll 500 sq. ft.
Rosin Sized Sheathing:	
Light wt, 20 sq. ft. to lb....	$0.35@0.40
Medium wt., 12 sq. ft. to lb.	$0.55@0.60
Heavy wt., extra quality..	$0.95@1.05
Barrett's Water Proof Sheathing.....	$1.35@1.75
Medium Grades Water Proof sheathing.....	$0.80 to 1.25
Deafening Felt, 9, 6 and 4½ sq. ft. to lb., ₩ ton.....	$42.50

Tarred Paper.

1 ply (roll 300 sq. ft.), ₩ ton.... $35@37
2 ply, heavy, ₩ roll 100 sq. ft.....90¢
2 ply, light, ₩ roll 100 sq. ft.....75¢
3 ply, heavy, ₩ roll 100 sq. ft.....$1.20
3 ply, light, ₩ roll 100 sq. ft.....$1.00

Sand and Emery—

List April 19, 1880.....50&10&5@60%

Parers—

Apple—

Advance.....	₩ doz.	$4.50
Baldwin.....	₩ doz.	$5.00
Bonanza.....	each	$5.00
Dandy.....	each	$7.50
Eureka, 1888.....	each	$16.00
Family Bay State.....	₩ doz.	$12.00
Hudson's All Star.....	₩ doz.	$4.00
Hudson's No 1 King Cable....	₩ doz	$5.50
Improved Bay State ₩ doz.		$27.00@30.00
New Lightning.....	₩ doz.	$5.50
Penn.....	₩ doz.	$4.75
Perfection.....	₩ doz.	$4.00
Reading 72.....	₩ doz.	$4.00
Reading 78.....	₩ doz.	$7.00
Turn Table.....	₩ doz.	$4.50
White Mountain.....	₩ doz.	$4.00

Potato—

Saratoga.....₩ doz. $5.50
White Mountain.....₩ doz. $4.50

Paris Green—

Arsenic kegs or casks.....₩ ℔ 12 ¢
Kegs of 100 to 175 pounds.....₩ ℔ 12½¢
Kits of 14, 28 and 56 pounds..₩ ℔ 13½¢
Paper boxes 2 to 5 pounds....₩ ℔ 13½¢
Paper boxes 1 pound.....₩ ℔ 14 ¢
Paper boxes ½ pound.....₩ ℔ 15 ¢
Paper boxes ¼ pound.....₩ ℔ 16 ¢

Picks and Mattocks—

List Feb. 23, 1899.....70@70&10%

Pinking Irons—

See *Irons, Pinking.*

Pins—

Escutcheon—

Brass.....60@60&5%
Iron, list Nov. 11, '85.....60@60&5%

Pipe, Cast Iron Soil—

Factory Shipments.

Standard.....75&5@75&10%
Extra Heavy.....75&10&5@80%
Fittings.....80@80&5%

Pipe, Wrought—

Factory Shipments.

List February, 1899.
Plain and Galvanized.....60&5 tens &5%
Screw and Socket Casing.....52½&5&5%
Inserted Joint Casing.....47½&5&5%
Cold Drawn Seamless Steel Tubing..60%

Planes and Plane Irons—

Wood Planes—

Molding.....45@45&5%
Bench, First quality.....50&5@50&10%
Bench, Second quality.....50&10&5@60%
Bailey's (Stanley R. & L. Co)
50&10&10@50&10&10&10%

Iron Planes—

Bailey's (Stanley R. & L. Co).....
50&10&10@50&10&10&10%
Chaplin's Iron Planes.....50&10%
Miscellaneous Planes (Stanley R. & L. Co.).....25&10&10@25&10&10&10%
Sargent's.....60&10&10@70%

Plane Irons—

Standard List.....30&10@30&10&10%
Auburn Thistle.....30&10@30&10&10%
Buck Bros.....30%
Butcher's.....$5.00@5.25 to 2
Stanley R. & L. Co....50&10@50&10&10%
L. & L. J. White.....20&5@25%

Plates—

Felloe.....₩ ℔ 3½¢@3¾¢
Self-Sealing Pie Plates (S. S. & Co.), ₩ doz. $2.00.....50%

Pliers and Nippers—

Acme Nippers.....50%
Bernard's:
Parallel Pliers, &c.....33⅓%
Paragon Pliers.....50%
Lodi Pliers.....50%
Elm City Fence Pliers.....35%
Button's.....70&10@70&10&5%
Cronk's Patent Pliers.....60%
Cronk's Stubb's Pat. Pliers.....50&10%
Cronk's Button Pattern.....70%
Cronk's Combo. Cutting and Gas Pliers, ₩ doz. $20.00, 60%

Gas Pliers, ₩ doz.:

	7-in.	8-in.	9-in.	10-in.
Best.....	$5.25	$6.00	$6.50	
Good....	$2.50	2.75	3.00	3.50

Heller's Farriers' Pincers and Tools....
40@40&5%
Morrill's Parallel, ₩ doz. $12.00...30&5%
P., S. & W. Cast Steel.....50@50&5%
P., S. & W. Tinners' Cutting Nippers, add 6%.....10%
Utica Drop Forge & Tool Co.:
Combination Pliers.....40&5%
Side Cutting Pliers.....40&5%
Hall Patent Nipper.....40&5%
Round and Flat Nose Pliers.....40&5%
End Cutting Pliers.....40&5%
Royal Blue.....40&5%
Glass Pliers.....40&5%
Burner Pliers.....40&5%

Plumbs and Levels—

Plumbs and Levels.....
70&10&10@70&10&10&10%
Cook's.....40&10&10@40&10&10&5%
Disston's.....70%
Pocket Levels.....75&10&10@75&10%
Stanley R. & L. Co.....
70&10&10@70&10&10&10%
Stanley's Duplex.....25&10@25&10&10%
Woods' Extension.....33⅓%

Poachers, Egg—

Buffalo Steam Egg Poachers, ₩ doz., No. 1, $4.00; No. 2, $9.00; No. 3, $9.00; No. 4, $12.00.....50%

Points, Glaziers'—

Bulk and 1 ℔ papers.....₩ ℔ 10½@11½¢
½ ℔ papers.....₩ ℔ 11@12 ¢
¼ ℔ papers.....₩ ℔ 11½@12½¢

Pokes, Animal—

Bishop's American.....₩ doz. $2.75
Bishop's I. X. L.....₩ doz. $5.50
Bishop's Steel Monarch.....₩ doz. $4.25
Bishop's Pioneer.....₩ doz. $3.25
Ft. Madison Hawkeye.....₩ doz. $3.00
Ft. Madison, Western.....₩ doz. $3.50
Ironclad, Sunbury, with strap, ₩ doz. $4.25
Ironclad, Sunbury, with snap, ₩ doz. $4.00
Metallic Horse Poke.....₩ doz. $5.00

Police Goods—

Bean's.....25%
Tower's.....25%

Polish—Metal—

Prestoline Liquid, No. 1 (¼ pt.), ₩ doz. $3.00; No. 2 (1 qt.), $9.72.....40%
Prestoline Paste.....33⅓@40%
U. S. Metal Polish Paste, 3 oz. boxes, ₩ doz. 50¢; ₩ gr. $4.50; ½ ℔ boxes, ₩ doz. $1.25; 1 ℔ boxes, ₩ doz. $2.25.
U. S. Liquid, 8 oz. cans, ₩ doz. $1.25; ₩ gr. $12.00.
Barkeepers' Friend Metal Polish, ₩ doz. $1.75; ₩ gr. $18.00.
Wynn's White Silk, ¼ pt. cans, ₩ doz. $1.50

Stove—

Joseph Dixon's, ₩ gr. $5.75.....10%
Dixon's Plumbago.....₩ ℔ 8¢
Fireside.....₩ gr. $2.50
Gem, ₩ gr. $4.50.....10%
Japanese.....₩ gr. $3.50
Jet Black.....₩ gr. $3.50
Wynn's Black Silk, 5 ℔ pail.....₩ ℔ 12¢
Wynn's Black Silk, ½ ℔ box, ₩ doz. $1.00
Wynn's Black Silk, 5 oz. box, ₩ doz. $0.75
Wynn's Black Silk, 8 oz. liq., ₩ doz. $1.00

Poppers, Corn—

Round or Square.

1 qt.....	₩ doz.	60¢;	₩ gr. $6.00
1½ qt.....	₩ doz.	70¢;	₩ gr. 7.50
2 qt.....	₩ doz.	$1.10;	₩ gr. 11.50

Quincy Corn Popper, 1 qt., ₩ gr. $17.00; 2 qt., $22.00.

Post Hole and Tree Augers and Diggers—

See also *Diggers, Post Hole, &c.*

Potato Parers—

See *Parers, Potato.*

Pots—

Glue—

Enameled.....40&10&5@50%
Tinned.....40&5@40&10%

Powder—

In Canisters:

Duck, 1 ℔ each.....	45¢
Fine Sporting, 1 ℔ each.....	75¢
Rifle, ½ ℔ each.....	15¢
Rifle, 1 ℔ each.....	25¢

In Kegs:

Duck, 6¼ ℔ kegs.....	$2.25
Duck, 12½ ℔ kegs.....	$4.25
Duck, 25 ℔ kegs.....	$8.00
Rifle, 6¼ ℔ kegs.....	$1.25
Rifle, 12½ ℔ Kegs.....	$2.25
Rifle, 25 ℔ kegs.....	$4.00

King's Smokeless:

Keg (25 ℔ bulk).....	$20 00
Half Keg (12½ ℔ bulk).....	$10.25
Quarter Keg (6¼ ℔ bulk).....	$5.25
Canister (1 ℔ bulk).....	$0.90
Case, 1 ℔ Canisters (50 ℔ bulk).....	$45.00
Half Case, 1 ℔ Canisters (25 ℔ bulk).....	$22.75

25&10&5%

King's Semi-Smokeless:

Keg (25 ℔ bulk).....	$16.00
Half Keg (12½ ℔ bulk).....	$8.25
Quarter Keg (6¼ ℔ bulk).....	$2.75
One Pound Can, bulk.....	$0.50

20&5%

Presses—

Fruit and Jelly—

Enterprise Mfg. Co.....25&30%

Pruning Hooks and Shears—See *Shears.*

Pullers Nail—

Crown, ₩ doz. $18.00.....50%
Crown France, ₩ doz. $15.00.....50%
Giant, No. 1, ₩ doz. $18; No. 2, $16.50; No. 3, $15.....40%
National, ₩ doz. $24.00.....40%

Pelican, ₱ doz. $9.00.....15&10%
Scranton, No. 1 and 2, ₱ doz.....$10.00
Scranton, No. 3, ₱ doz.....$9.50

Pulleys—

Hay Fork, Swivel or Solid Eye.....
₱ doz. $1.50
Hay Fork, Stowell's Anti-Friction, 5-in. Wheel, ₱ doz. $12.00.....40%
Hay Fork, Stearns' No. 15 & 25 ₱ doz. $1.75
Hay Fork, Stearns' No. 35 & 45 ₱ doz. $2.00
Hay Fork, Stearns' Nos. 50 & 66. ...$2.25
Hot House, Awning, &c.....60@60&10%
Japanned Clothes Line.....60@60&10%
Japanned Screw.....70&10&10%
Japanned Side.....70&10&10%
Stowell's Ceiling or End, Anti-Friction 40%
Stowell's Dumb Waiter, Anti-Friction 50%
Stowell's Electric Light.....33⅓%
Stowell's Side, Anti-Friction.....50%
Sash (Auger Mortise):
Common Sense, 1¼ in., ₱ doz., 18¢; 2 in., 20¢.
Empire.....1¼ in., 17¢; 2 in., 19¢
L. C.....1¼ in., 15¢; 2 in., 17¢
Ideal No. 13.....1¼ in., ₱ doz., 15½¢
Improved.....1¼ in., 17¢; 2 in., 19¢
Niagara.....1¼ in., 16¢; 2 in., 17¢
No. 26, Troy.....1¼ in., 15¢; 2 in., 17¢
Star.....1¼ in., 16¢; 2 in., 17¢
Acme.....1¼ in., 18¢; 2 in., 19¢
Tackle Blocks—See *Blocks*.

Pumps—

Cistern.....65@45&10%
Pitcher Spout.....75@75&10%
Flint & Wallings Fast Mail.....60%
Myer's Pumps, low list.....55%
Pump Leathers, all sizes.....₱ gr. $6.00
Contractors' Rubber Diaphragm Non-chokable, B. & L. Block Co.....20%

Punches—

Bemis & Call Co.'s Cast Steel Drive.50&5%
Bemis & Call Co.'s Check.....55%
Bemis & Call Co.'s Spring.....50&5%
Bemis & Call Co.'s Springfield Socket..65%
Niagara Hollow Punches.....45%
Niagara Solid Punches.....55%
Revolving.....₱ doz. $3.50@3 75
Saddlers' or Drive, good...₱ doz. 60@65%
Spring, good quality..₱ doz. $1.70@1.80
Spring, Leach's Pat.....15%
Steel Screw, B. & K. Mfg. Co.....50%
Tinners' Hollow, P., S. & W. Co....20&2%
Tinners' Solid, P., S. & W.Co., ₱ doz., $1.44.....55%

Rail—

Barn Door, &c.—

Barn Door. Light....in.	½	⅝	¾
₱ 100 feet	$1.30	1.95	2.60

B. D., for N. E. Hangers:

	Small.	Med.	Large.
₱ 100 feet	$1.60	2.00	2.50

Cronk's Double Braced Steel Rail, ₱ foot.....3¢
Lanes' O. N. T., ₱ 100 ft.....$2.40
Lanes' Standard, ₱ ft.....3¼¢
McKinney's None Better.....₱ ft. 3¾¢
McKinney's Standard.....₱ ft. 3¾¢
Moore's, Wr't. Bracket, Steel.....$2.40
Sliding Door, Bronzed Wr't Iron.₱ ft. 6½¢
Sliding Door, Iron Painted.₱ ft. 2½@2½¢
Sliding Door, Wr't Brass, 1½in.₱ ℔ 36¢
80%
Stowell's Steel Rail.....35&10%
Terry's Steel Rail.....₱ ft. 3¼¢

Rakes—

1895 or old list often used:
C. S. Rakes.....60&10&3%
Malleable Rakes.....70&10&3%
Cast Steel, Asso. List.....75&10&2%
Malleable.....70&10%
Buffalo Lawn and Garden..₱ doz..$3.50
Fort Madison Red Head Lawn.....$3.00
Fort Madison Blue Head Lawn.....$2.65

Rasps, Horse—

Disston's.....75%
New Nicholson Horse Rasp.....70&10%
See also *Files*.

Razor Strops—

See *Strops, Razor*.

Reels—

Clothes Line—

Stearns'.....33⅓&10%

Fishing—

Hendryx Aluminum, German Silver, Gold, Bronze, Silver, Rubber, Popular and Salmon, Single Action, Multiplying and Quadruple, all sizes.....25%
Hendryx Single Action Series, 102P and PN, 202P and PN, 102 PR and PRN, 202 PR and PRN, 804 P and PN, 00304P and PN, 502 and 502N, 802 and 802N, 02084N, Competitor.50%
Hendryx Multiplying and Quadruple Series, 8004N and PN, 4N and PN, 2904N, 2904P and PN, 002904PN, 0924 and 0924N, 5009N and PN.....40&10%

Registers—

For points on Mississippi river and East:
Black Japanned.....50%
White Japanned.....0%
Bronzed Finishes.....40%
Nickel Plated.....50%
Electro Plated in Brass, &c.....40%
White Porcelain.....30%
Solid Brass and Bronze Metal.....25%
Note.—Higher prices are quoted in territory further West.

Rings and Ringers—

Bull Rings—

Peck, Stow & W. Co.'s.....60@60&10%
Sargent's.....80@80&10%

Hog Rings and Ringers—

Blair's Rings.....₱ gro. $3.75@4.00
Blair's Ringers.....₱ doz. 55¢@60¢
Brown's Rings.....₱ gro. $3.75@4.00
Brown's Ringers.....₱ doz. 55¢@60¢
Hill's Rings.....₱ gr. boxes, $3 25@3.50
Hill's Ringers, G L.....₱ doz. 50@55¢
Perfect Rings.....₱ gro. $7.00@7.50
Perfect Ringers, ₱ doz.....75@80¢

Rivets and Burrs—

Copper.....40&10@50%
Norway Quality or Soft Steel:
Tinners'.....70@75%
Miscellaneous.....70@75%

Rivet Sets—See *Sets*.

Roasting and Baking Pans—See *Pans, Roasting and Baking*.

Rollers—

Acme Stowell's Anti-Friction.....50&10%
Barn Door, Sargent's list.60&10&10@70%
Lane's, Stay.....33⅓&5%
Stowell's Barn Door Stay...₱ doz. $1.00

Rope—

The following prices are f.o.b. New York or factory; terms, 1⅓% for cash

Manila, 7-16 inch and larger.....₱ ℔ ..@ 9¾¢
Manila.....½ inch. ₱ ℔ ..@10¼¢
Manila.....¼ and 5-16 inch. ₱ ℔ ..@10¾¢
Manila, Tarred Rope.15 thread ₱ ℔ ..@ 9¾¢
Manila Hay Rope Medium.₱ ℔ ..@ 9¾¢
Sisal...7-16 in. and larger. ₱ ℔ ..@ 8¾¢
Sisal.....¾-inch.. ₱ ℔ ..@ 9¼¢
Sisal.....¼ and 5-16 in.. ₱ ℔ ..@ 9¾¢
Sisal, Hay Rope.2 to 10 ply. ₱ ℔ ..@ 8¾¢
Sisal, Medium Lath Yarn.. ₱ ℔ ..@ 8¼¢
Cotton Rope:
Best, ¼ in. and larger.....₱ ℔ 13@14¢
Medium, ¼ in. and larger ..₱ ℔ 10@12¢
Common, ¼ in. and larger...₱ ℔ 8@10¢
Jute Rope.....₱ ℔ 5½@6¢

Wire Rope—

List Sept. 1, '94. All kinds, 7½&2½&2 cash

Ropes, Hammock -

Covert Saddlery Works.....70%

Rules—

Boxwood..75&10&10&10@75&10&10&10&10&10&10%
Ivory....40&10&10@40&10&10&10&10&10%
Lufkin's Steel.....50&10%
Lufkin's Lumber.....50&10%
Stanley R. & L. Co.;
Boxwood.....75&10&10@75&10&10&10&10%
Ivory.....40&10&10@40&10&10&10%

Sad Irons—See *Irons, Sad*.

Sand and Emery Paper and Cloth—See *Paper and Cloth*.

Sash Cords—See *Cord, Sash*.

Sash Locks—See *Locks, Sash*.

Sash Weights—See *Weights, Sash*.

Sausage Stuffers or Fillers—See *Stuffers or Fillers, Sausage*.

Saws—

NOTE.—Extra 5@10% often given on Circulars, Cross Cuts, &c., and extra 5@7½ on Hand, Butcher, &c.

Atkins' Circular.....50%
Atkins' Band.....50%
Atkins' Cross Cuts.....40%
Atkins' Mulay, Mill and Drag.....50%
Atkins' One-Man Saw.....40&10%
Atkins' Wood Saws.....40&10%
Atkins' Hand, Compass, &c.....40%
Disston Circular Solid and Inserted Tooth.....50%
Disston Band 2 to 14 in. wide.....60%
Disston Band ¾ to 1¾.....70%
Disston Crosscuts.....50%
Disston Narrow Crosscuts.....55%
Disston Mulay, Mill and Drag.....50%
Disston Framed Woodsaws.....35%
Disston Woodsaw Blades.....40%
Disston Woodsaw Rods.....25%
Disston Handsaws, Nos. 12, 99, 9, 10, d100, D8, 120, 76, 77, 8.....25%
Disston Hand Saws, Nos 7, 107, 107½, 8, 1, 0, 00, Combination.....30%
Disston Compass, Keyhole, &c.....25%
Disston Butcher Saws and Blades....35%
C. E. Jennings & Co.'s.....25&5@30&5%
Peace Circular and Mill.....45&10%
Peace Cross Cuts, list Jan. 1, '93..45&10&5%
Peace Hand, Panel and Rip.....25&10&5%
Richardson's Circular and Mill...45&10%
Richardson's X Cuts, list Jan. 1, '93, 45&10&5%
Richardson's Hand, &c.....25&10&5%
Simonds' Circular Saws.....45@50%
Simonds' Crescent Ground Cross Cut Saws.....35%
Simonds' One-Man Cross Cuts....40&10%
Simonds' Gang Mill, Mulay and Drag Saws.....45@45&5%
Wheeler, Madden & Clemson Mfg. Co.:
Cross Cuts, list Jan. 1, '93...45&10&5%
Hand, Panel and Rip.....30&10&10%
Woodrough & McParlin:
Cross Cuts, list Jan. 1, '93..45&10&10%
Hand, Panel and Rip.....25&10&10%

Hack Saws—

Disston Concave Blades.....25%
Disston Keystone.....30%
Disston Hack Saw Frames.....30%
Griffin's complete.....50@50&5%
Griffin's Hack Saw Blades.....50@50&5%
Star Hack Saws and Blades.....15&10%

Scroll—

Barnes' No. 7, $15.....25%
Barnes' Velocipede Scroll Saw, $18...30%
Barnes' Scroll Saw Blades.....40%
Lester, complete, $10.00.....15&10%
Rogers, complete $4.00.....15&10%

Saw Frames—

See *Frames, Saw*.

Saw Sets—See *Sets, Saw*.

Saw Tools—See *Tools, Saw*.

Scale Beams—

See *Beams, Scale*.

Scales—

Chatillon's Eureka.....25%
Chatillon's Favorite.....40%
Chatillon's Grocers' Trip Scales.....50%
Family, Turnbull's.....30@30&10%
Hatch, Counter, No. 171, good quality, ₱ doz. $17.00@18.00
Hatch, Tea, No. 161...₱ doz. $5.75@6.00
Pelouze Scales—Family, Candy, Grocers and Postal.....33⅓%
Union Platform, Plain.....$2.00@2.10
Union Platform, Striped.....$2.15@2.25
"The Standard" Portables.....45@50%
"The Standard" R. R. and Wagon. ..60%

Scrapers—

Adjustable Box Scraper (S. R. & L. Co.) $6.00.....40&10%
Box, 1 Handle.....₱ doz. $2.00
Box, 2 Handle.....₱ doz. $3.00@4.00
Foot, W. E. Pratt Mfg. Co., ₱ doz. $1.00 @$1.15
Ship, No. 1, ₱ doz., $3.50; No. 2, $2.25 @$2.40
Ship, R. I. Tool Co.....10%
Tatum's Box.....25&10%

Screen Window and Door Frames—See *Frames*.

Screw Drivers—

See *Drivers, Screw*

Screws—

Bench and Hand—

Bench, Iron.....₱ doz., 1 in., $2.30; 1¼, $3.05; 1½, $3.90
Bench, Wood, Beech..₱ doz. $2.00@2.20
Hand, Wood.....30&10@40&10%
Hand, Grand Rapids.....35%

Coach, Lag and Hand Rail—

Lag, Common Point, list Jan. 30, '95...
80@80&10%
Coach and Lag, Gimlet Point, list Jan. 30, '95.....80&5@80&10&5%
Hand Rail, list Jan. 1, 1881.....82½&2%

Jack Screws—

Millers Falls.....50&10&10%
Millers Falls, Roller.....50&10%
P., S. & W.....40@40&10%
Sargent.....70&10&10%
Stearns'.....40&10%
Tatum's.....25&10%

Machine—

List Jan. 1, '98.
Flat or Round Head, Iron.....60%
Flat or Round Head, Brass.....50%

Set and Cap—

Set (Iron or Steel).....75@75&10%
Sq. Hd. Cap.....70@70&10%
Hex. Hd. Cap.....70@70&10%

Wood—

Manufacturers' Circular Prices, March 22, '99.
List Nov. 10, 1898.
Flat Head, Iron.....85%
Round Head, Iron.....82½%
Flat Head, Brass.....80&10%
Round Head, Brass.....75&10%
Flat Head, Bronze.....75&10%
Round Head, Bronze.....75%
Rogers' Drive Screws.....87½%
Note—An extra 5 or 10% is often given.

Scroll Saws—See *Saws, Scroll*.

Scythes—

Grass and Grain.....50&10%

Scythe Snaths—

See *Snaths, Scythe*.

Seeders—

Raisin—

Enterprise.....25@30%

Sets—

Awl and Tool—

Brad Awl and Tool Sets:
Wood Hdle., 10 Awls, ₱ doz.....$3.00
Wood Hdle., 14 Awls, 6 Tools, ₱ doz. $2.25@2.40
Aiken's Sets, Awls and Tools:
No. 20, ₱ doz. $10.00.60&10@60&10&5%
Fray's Adj. Tool H'dls...Nos. 1, $12; 2, $18; 3, $12; 4, $9; 5, $7.....50%
Millers Falls Adj. Tool H'dls, No. 1, $12; No. 4, $12; No. 5, $18 ....15&10%
Stanley's Excelsior:
No. 1, $7.50; No. 2, $4.00; No. 3, $5.50.....40&10@40&10&5%

Garden Tool Sets—

Ft. Madison Rakes, Shovel and Hoe.....
₱ doz.....$9.00

Nail—

Round, assorted.....₱ gr. $3.00@3.50
Octagon.....₱ gr. $4.00@4.75
Buck Brothers.....27½%
Cannon's Diamond Point, ₱ gr. $13...25%
Snell's Corrugated, Cup Pt.....50%
Snell's Knurled, Cup Pt.....66⅔%

Rivet—

Regular list.....70@70&10%

Saw—

Aiken's Genuine.....₱ doz. $4.50@5.00
Aiken's Imitation.....₱ doz. $3.00@3.10
Atkin's Criterion.....₱ doz. $6.00
Atkin's Adjustable.....₱ doz. $6.00
Bemis & Call Co.'s Cross Cut.....30&5%
Bemis & Call Co.'s Plate.....20%
Bemis & Call Spring Hammer.....50&5%
Disston's Star and Monarch.....25%
Hammer, Bemis & Call Co.'s new Pat.45%
Hammer, Seymour, Smith & Son, ₱ doz. $4.75
Morrill's No. 1, $15.00.....40&20%
Nos. 3 and 4, Cross Cut, $23.00.40&20%
No. 5, Mill, $31.00.....40&20%
No. 10, $15.50.....40&20%
No. 11, $16.00.....40&20%
Stillman.....₱ doz. $1.00
Taintor Positive, ₱ doz. $17.....60%

Sharpeners, Knife—

Tanite Mills ₱ gross, $14.40.....25@33⅓%

Shaves, Spoke—

Iron, Common.....₱ doz..$1.00@1.25
Wood, Common.....₱ doz..$1.75@2.00
Bailey's (Stanley R. & L. Co.).....50&10%
Cincinnati.....25&10%
Goodell's, ₱ doz. $9.00.....15&10%
Stearns'.....40&10%
Tatum's.....25&10%

Shears—

Cast Iron...	7	8	9 in.
Best	$16.00	18.00	20.00 ₱ gro.
Good	$13.00	15.00	17.00 ₱ gro.
Cheap	$9.00	10.00	11.00 ₱ gro.

Acme Cast Shears.....40@40&5%
Straight Trimmers, &c.
Good quality.....70&10@75&10%
Second quality.....80&10@85%
Davenport Cutlery Co.....60@60&10%
Heinisch's Tailors' Shears.....40@40&5%
Seymour's, list Dec. '81.....60&10&10@70&5%
Seymour's Nickel.....50&10@60&5%
Seymour's Tailors Shears.....40@40&5%
Wilkinson's Hedge.....50%
Wilkinson's Sheep.....15%

Tinners' Snips—

Forged Handles, Steel Blades.....20&10%
Malleable Handles, Laid with Steel...40%
Forged Handles, steel Blades, Berlin.....40&10%
Niagara Snips.....40%
Seymour's.....60&10&10@70&5%

Pruning Shears and Tools—

Disston's Combined Pruning Hook and Saw, ₱ doz. $18.00.....25@25&10%
Disston's Pruning Hook, ₱ doz. $12.00 25@25&10%
Eagle Pruning Shears.....60%
John T. Henry Mfg. Company:
Henry's Genuine, Nos. 1, 2 and 22 .....50&10%
Henry Pattern, No. 20.....50&25%
Henry's Pattern, No. 21.....50&30%
Conn. Pattern, Nos. 32, 33 and 3.50&25%
Conn. Pattern, No. 4.....50&20%
Henry's Orange Shears.....50&30%
Henry's Grape Shears.....50&20%
Henry's Tree Pruners.....75%
Levin Pruner, No. 23, $9.00 ₱ doz....45%
Levin Pruner, No. 24, $12.90 ₱ doz....45%
No. 100 Pruning Shear.....60&10%
P., S. & W. Co.....60%
Seymour's.....60&10&10@70&5%
Seymour Smith & Son:
Rockdale.....20%
New Standard Tree Pruner.....80&5%
Others.....05%
Telegraph Tree Pruner.....70&5%
Waters' Tree Pruner.....80&5%
Wheeler, M. & C. Co., Combination, ₱ doz. $12.00.....25&10@25&10&5%

Sheaves—Sliding Door—

Stowell's Anti-Friction.....50%
Patent Roller.....60&10@60&10&5%
Patent Roller Hatfield's, Sargent's list, 80&10@80&10&7%
Reading.....70&10@75%
R. & E.....60&10@60&10&5%
Wrightsville, Hatfield Pattern...80&10%

Sliding Shutter—

Reading list.....70&10@75%
R. & E.....60@60&10%
Sargent's list.....60@60&10%

Shells—

Brass Shot Shells, Club, Rival, Climax, 65&2%
Brass Shot Shells, first quality.....60&2%
First quality 4, 8, 10 and 12 gauge, 25&10&2%
First quality Rival, Club and Climax brands, 14, 16 and 20 gauge ($7.50 list).....20&10&2%
Quick Shot, Reinforced New Victor40&2%
Smokeless brand, 12, 10, 16 gauge.... 33⅓&10&2%
Star, Club, Rival and Climax Brands . 33⅓&10&2%
Trap brand 12 and 10 gauge.33⅓&10&2%

Shells, Loaded—

Loaded with Black Powder.....
40&5@40&10%
Loaded with Nitro Powder.....
40&10&10&5@40&10&10&10%

Ship Tools—

L. & I. J. White.....25%

Shoes, Horse, Mule, &c.—

Burden's, Perkins', Phoenix, Old Dominion Bryden's Boss Crescent, &c., from jobbers.....$3.10@3.25
Bryden's Frog Pressure.....$4.00
Gibbs' Rubber Cushioned....₱ set, $1.50

Shot—

Drop, up to B 25-℔ bag.....$1.40@1.45
Drop, up to B, 5-℔ bag.....30
Drop, B and larger, 25-℔ bag.$1.65@1.70
Drop, B and larger, 5-℔ bag.....35
Buck 25-℔ bag.....$1.65@1.70
Buck, 5-℔ bag.....35
Chilled, 25-℔ bag.....$1.68@1.73
Dust Shot, 25-℔ bag.....2.00
Dust Shot, 5-℔ bag.....50

These prices are often shaded 5@10¢ ₱ 25 ℔ bag, especially in the West, and with the rapid advances which have taken place merchants are often in a position to undersell the manufacturers.

Shovels and Spades—

No. 2, Polished, Sq. or Rd. Point. D or L Handle:

Price ₱ doz.

	A1, 1st Grade.	B2, 2d Grade.
Plain Back	$8.85@9.15	$7.95@8.25
Strap Back	8.25@8.55	7.35@7.65
Cleveland Pat'rn	8.55@8.85	7.65@7.95

	C3 3d Grade.	D4, 4th Grade.
Plain Back	$7.0@7.35	$6.45@6.75
Strap Back	6.45@6.75	5.85@6.15
Cleveland Pat'rn	6.75@7.05	6.15@6.45

All other sizes add 30¢ ₱ doz.
Black deduct 30¢ ₱ doz.
These prices are often shaded by jobbers.

Shovels and Tongs—

Brass Head.....60&10@60&10&10%
Iron Head.....60&10@60&10&5%

Sieves and Sifters—

Buffalo Metallic, S. S. & Co., ₩ gr.:

	18	16&18	18	18&20
Blued	$10.80	$11.40	$11.40	$12.00
Tinned	11.40	12.00	12.00	12.60

Eclipse.....₩ gr. $8.00@ 9.00
Hunter's Genuine....₩ gr. $10.00@10.50
Hunter's Imitation...₩ gr. $9.00@ 9.50
Shaker (Barler's Pat.) Flour Sifters.. ₩ doz., $2.00.....95%

Sieves, Wooden Rim—

	Iron.	Plated.
Mesh 18, Nested, ₩ doz....	$0.70	$0.85
Mesh 20, Nested, ₩ doz....	.90	1.05
Mesh 24, Nested, ₩ doz....	1.05	1.20

Sinks—

Cast Iron—

High list.....75&5@75&10%
Low list.....60&10&10@70%

Wrought Steel—

Columbus Galv'd and Enameled.50&10%
Columbus, Painted.....30&10%
L. & G.....50&10%

Slates—(From store).

"D" Slates.....50&10&10&10&5%
Unexcelled Notchless Slates, 60&nine 10s.
Victor slates.....60 and eight 10s and 5%

Slaw Cutters—See *Cutters.*

Snaps Harness—

Covert Mfg. Co.:
Derby.....45&2%
High Grade.....45&2%
Jockey.....45&2%
Trojan.....45&2%
Covert's Saddlery Works:
Banner.....75%
Crown.....70%
Triumph.....70%
W. & E. T. Fitch:
Bristol.....40&10%
Empire.....50&5%
National.....50&5%
Clipper.....50&10&5%
Champion.....40&10%
Victor.....60&5%
German.....50@50&5%
Sargent's Patent Guarded.....70&10@70&10&10%

Snaths—

Scythe.....55%

Snips, Tinners'—See *Shears.*

Soldering Irons—

See *Irons, Soldering.*

Spoke Trimmers—

See *Trimmers, Spoke.*

Spoons and Forks—

Tinned Iron—

Basting, Cen. Stamp Co.'s list.75&10@80%
Solid Table and Tea, Cen. Stamp. Co.'s list.....70&25%

Silver Plated—

Flat Ware.....50&10@50&10&5%
Wm. Rogers M'g. Co.....50&10%

Miscellaneous—

German Silver.....60&10%
C. Rogers & Bros.:
18 per cent. German Silver.....60%
18 per cent. Nickel silver.....60%
Silver Metal.....50&10%
Wm. Rogers Mfg. Co.:
18% German Silver.....60%
Rogers' Silver Metal.....50&10%

Springs—

Door—

Gem (Coil).....20%
Rubber, complete.....₩ gro. $15.00
Star (Coil).....30%
Torrey's Rod, 30 in....₩ doz. $1.10@1.25
Warner's No. 1, ₩ doz. $1.50; No. 2, $3.40.....55&55&10%
Victor (Coil).....60&10@60&10&5%

Carriage, Wagon, &c.

Elliptic, Concord, Platform and Half Scroll, 60&10@60&10&10&10 or following net prices:

	Tempered Blk.	Brt.	Oil Tempered. Blk.	Brt.
1¼ in.	5¼¢	5¾¢	6 ¢	6¼¢
1⅜ in.	5¼¢	5¾¢	6 ¢	6¼¢
1½ in.	5¼¢	5¾¢	6¼¢	6 ¢

Cliff's Bolster Springs.....40&2%
Cliff's Seat Springs.....₩ pair 48¢

Sprinklers, Lawn—

Enterprise.....25@30%
Philadelphia No. 1, ₩ doz. $12; No. 2, $15; No. 3, $24.....35%

Squares—

Nickel plated.....} List May 1, '95....
Steel and Iron.....} 75&10@75&10&5%
Rosewood Hdl. Try Square and T-Bevels 60&10&10@70%
Iron Hdl. Try Squares and T-Bevels 40&10@40&10&10%
Diston's Try Sq. and T-Bevels....60&10%
Winterbottom's Try and Miter...50&10%

Squeezers—

Lemon—

Wood, Common, ₩ gr., No. 0, $5 00; No. 1, $6.50; No. 2, $10.00.
Wood, Porcelain Lined:
Cheap.....₩ doz. $2.50@2.75
Good Grade.....₩ doz. $3.00@3.50
Tinned Iron.....₩ doz. $0.80@1.25
Iron, Porcelain Lined, ₩ doz. $3.25@3.50
Hotchkiss Straight Flash....₩ doz. $9.60
Jennings' Star.....₩ doz. $1.85@1.90
King.....₩ doz. $3.00

Staples—

Barbed Blind, ⅛, ⅝ and ¾ in. ₩ ℔ 5¾@6¢
Fence Staples, Galvanized } Same price as B'rb Wire
Fence Staples, Plain..... } See Trd.Rep.
Grand Crossing Tack Co.'s list....75&10%

Steels, Butchers'—

Dick's.....40%
Foster Bro's.....40%
C. & A. Hoffmann's.....40%
Nichols Bros.....50%
John Wilson's, list Sep. 1, '94.....25%

Steelyards.....40@40&10%

Stocks and Dies—

Blacksmith's:
Butterfield's Goods.....85@40%
Waterford Goods.....35@40%
Gardner.....40&10%
Green River.....25%
Lightning Screw Plate.....25%
Little Giant.....25%
Reece's New Screw Plates.....25@30%
Reversible Ratchet.....35%

Stone—

Scythe Stones—

Pike Mfg. Co., list '95-'96.....33⅓%
Cleveland Stone Co., list Nov., '92..33⅓%

Oil Stones, &c.

Pike Mfg. Co.:
Hindostan No. 1, ₩ ℔...8¢ } 33⅓@
Sand Stone.....5¢ } 33⅓&10%
Turkey Oil Stone, Extra, 5 to 9 in.....80¢
Turkey Slips.....$2.00
Lily White Washita.....60¢ } 33⅓@33⅓&10%
Rosy Red Washita.....60¢
Washita Stone, Extra.....50¢
Washita Stone, No. 1.....40¢
Washita Stone, No. 2.....30¢
Lily White Slips.....90¢
Rosy Red Slips.....90¢
Washita Slips, Extra.....80¢
Washita Slips, No. 1.....70¢
Arkansas Stone, No. 1, 3 to 5¼ in. $2.85
Arkansas Stone, No. 1, 5¼ to 8 in. $3.50
Tanite Mills:
Emery Oil, ₩ doz. $5.00.....50@60%

Stoners—

Cherry—

Enterprise.....25@30%

Stops, Bench—

Cincinnati.....25&10%
Seymour Smith & Son, ₩ doz., No. 1, $3.50; No. 2, $3.20
Millers Falls.....15&10%
Morrill's...₩ doz., No. 1, $10.00; No. 2, $11.00, 40&20%
Stearns'.....30&5%
Tatum's.....40%

Stops, Window—

Taplin's.....45%

Stove Boards—

See *Boards, Stove.*

Stove Polish—See *Polish, Stove.*

Straps, Box—

Cary's Universal.....20&10&10%

Stretchers, Carpet—

Cast Iron, Steel Points....₩ doz. 70@75¢
Cast Steel, Polished.....₩ doz. $2.25
Socket.....₩ doz. $1.75
Bullard's.....25&10&40%

Stuffers, Sausage—

Miles' Challenge, ₩ doz. $20...50@50&5%
Enterprise Mfg. Co., list Jan. 17, '93.... 25@25&7½%
National Specialty Mfg. Co., list Jan. 1, '97.....95%

Tacks, Brads, &c.—

List Jan. 15, '99.

Carpet Tacks—
American Blued.....90&30@90&35%
American Tinned.....90&30@90&35%
American Cut Tacks.....90&25@90&30%
Swedes Iron Tacks.....90&33⅓@90&40%
Upholsterers' Tacks..90&40&10@90&50%
Gimp Tacks.....90&40&10@90&50%
Lace Tacks.....85&20@90%
Trimmers' Tacks.....90&33⅓@90&35%
Looking Glass Tacks.....75%
Bill Posters' and Railroad Tacks..... 90&25@90&35%
Hungarian Nails.....80&10@80&15%
Common and Patent Brads....75@75&5%
Trunk and Clout Nails:
Blued.....80&10%
Tinned.....80&10%

Miscellaneous—

Double Point Tacks.....90&10&5@....%
Steel Wire Brads, R. & E. Mfg. Co.'s list 50&10@60%

See also *Nails, Wire.*

Tanks, Oil—

Emerald, S. S. & Co.....30-gal. $3.00
Emerald, S. S. & Co.....60-gal., $3.75
QueenCity S. S. & Co., 60-gal., each, $4.00; 100-gal., $6.25; 120-gal., $8.50; 200-gal., $14.00; 250-gal.....$17.75
Wilson's:
No. 9.....66&10%
Aztec, Force Pump.....60&10%
Cone Top, Measuring Pump.....60%
Cabinet, Measuring Pump.....50%
Gasoline Tanks.....60&10%

Tapes, Measuring—

American Asses Skin.....40&10@50%
Patent Leather.....25@25&10%
Steel.....33⅓@40%
Chesterman's.....25@35&5%
Keuffel & Esser Co., Steel and Metallic, new list, 1898.....35%
Lufkin's Steel and Metallic.....33⅓@33⅓&5%

Thermometers—

Tin Case.....80&10%

Ties, Bale—Steel.

Standard Wire, list.....50&10&5%

Ties, Wall—

Cleveland, Steel.....₩ 1000, $10.00

Tinners' Shears, &c.—

See *Shears, Tinners, &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tire Benders, Upsetters, &c.—See *Benders and Upsetters, Tire.*

Tobacco Cutters—

See *Cutters, Tobacco.*

Tools—

Coopers'—

Shaves, Cincinnati Tool Co.....20%
L. & I. J. White.....20@20&5%

Saw—

Atkins' new list.....40%
Simonds'.....33⅓%

Transom Lifters—

See *Lifters, Transom.*

Traps—Game—

Newhouse.....50&5@50&10%
Oneida Pattern.....80@80&5%
Sensible.....33⅓@33⅓&10%

Mouse and Rat—

Dandy.....₩ doz. $1.75
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat.....₩ doz. $15.00
No. 3, Rat.....₩ doz. $5.85
No. 3½, Rat.....₩ doz. $4.50
No. 4, Mouse.....₩ doz. $4.30
No. 5, Mouse.....₩ doz. $3.00
Hotchkiss Metallic Mouse, 5-hole traps, ₩ doz. 6¼¢; in full cases, ₩ doz....60¢
Hotchkiss Imp. Rat Killer...₩ gr. $12.50
Hotchkiss New Rat Killer...₩ gr. $12.50
Mouse, Wood, Choker, ₩ doz. holes.8@9¢
Mouse, Round Wire, ₩ doz. $1.50....10%
Mouse, Sensible.....33⅓%
Rat, Decoy, ₩ gr. $10.00.....10%
Rat, Sensible.....33⅓%
Schuyler's Rat Killer, No. 1, ₩ gr. $13.50; No. 2, ₩ gr. $15.00

Fly—

Balloon, Globe or Acme..... ₩ doz. $1.25; ₩ gr. $13.50
Harper, Champion or Paragon..... ₩ doz. $1.75; ₩ gr. $16.50

Triers—

Butter and Cheese.....25%

Trimmers, Spoke—

Bonney's No. 1, ₩ doz. $2.75; No. 2, $3.75
Cincinnati.....25&10%
Douglas', ₩ doz. $9.00.....20%
Stearns'.....20&10%

Trowels—

Garden.....70%
Diston Brick and Pointing.....30%
Diston Plastering.....25%
Diston "Standard Brand" and Garden Trowels.....40%
Peace's Plastering.....25@25&5%
Rose Brick and Plastering...30@30&10%
Woodrough & McFarlin, Plastering.25&10%

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list.....40%
Daisy Stove Trucks, Improved pattern ₩ doz. $18.00

Tubs, Wash—

	No. 1	2	3
Galvanized, ₩ doz.	$4.00	4 50	5.00

Galvernized S. S. & Co., with Wringer Attachment, ₩ doz., No. 10, $6.25; No. 20, $6.75; No. 30.....$7 50

Twine—

Binder—

White Sisal, 500 feet to ℔.....9¾¢
Standard, 500 feet to ℔.....9¼¢
Manila, 600 feet to ℔.....10¾¢
Pure Manila, 650 feet to ℔.....10¾¢

Miscellaneous—

Flax Twine—	BC.	B.
No. 9, ¼ and ⅜ ℔ Balls...	20¢	24¢
No. 12, ¼ and ⅜ ℔ Balls...	17¢	20¢
No. 18, ¼ and ⅜ ℔ Balls...	14¢	17¢
No. 24, ¼ and ⅜ ℔ Balls...	14¢	17¢
No. 36, ¼ and ⅜ ℔ Balls...	13¢	16¢

Chalk Line, Cotton, ⅛ ℔ Balls....18@20¢
Cotton Mops, 6, 9, 12 and 15 ℔ to doz. 8@9¢
Cotton Wrapping, 5 Balls to ℔....9@10¢
American 2-Ply Hemp, ¼ and ⅜ ℔ Balls.....9@10¢
American 3-Ply Hemp, 1 ℔ Balls..9@10¢
American 3-Ply Hemp, 1 ℔ Balls (Spring Twine).....10@11¢
India 2-Ply Hemp, ¼ and ⅜ ℔ Balls (Spring Twine).....8¢
India 3-Ply Hemp, 1 ℔ Balls.....8¢
India 3-Ply Hemp, 1¼ ℔ Balls.....7@7½¢
2, 3, 4 and 5-Ply Jute, ½ ℔ Balls.....6½¢
Mason Line Linen, ⅛ ℔ Balls.....45¢
No. 264 Mattress, ¼ and ½ ℔ Balls...34¢
Wool.....5@5½¢

Vises—

Bonney's Saw Vises.....50&10%
Solid Box.....60&10@60&10&10%

Parallel—

Bonney's.....50&5%
Fisher & Norris Double Screw....15&10%
Hollands'.....40@40&10%
Massey's Perfect.....20@25%
Massey's Clincher.....40@40&10%
Merrill's.....25%
Miller's Falls.....45&10%
Parker's.....20@25%
Parker's Oval Slide.....50&10%
Parker's Victor.....30%
Prentiss.....20@25%
Sargent's.....70&10@70&10&10%
Simpson's Adjustable.....40%
Stephens'.....25@30%
Toles' Woodworking.....25%
Trenton.....40&5@40&10%

Saw Filers—

Bonney's, Nos. 2 & 3, $15.00.....50&10%
Cincinnati.....25&10%
Diston's D 3 Clamp and Guide, ₩ doz. $30.....25%
Reading.....40&10%
Stearns' Common, Nos. 0, 1, 2 & 3....50%
Stearns' Rubber Jaw, Nos. 10 & 33.33⅓%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3.....40%

Miscellaneous—

Bignall & Keeler Combination Pipe Vise.....60&5%

Parker's Combination Pipe:
87 Series.....60%
187 Series.....60&5%
No. 870.....40%

Wads—Price Per M.

U. M. C. & W. R. A.—B. E., 11 up.. 60¢ } Black Edge
U. M. C. & W. R. A.—B. E., 9 & 10. 70¢ } Black Edge
U. M. C. & W. R. A.—B. E., 8..... 80¢ } Black Edge
U. M. C. & W. R. A.—B. E., 7..... 80¢ } Black Edge
U. M. C. & W. R. A.—P. E., 11 up $1.00 } Pink Edge
U. M. C. & W. R. A.—P. E., 9 & 10..1.25 } Pink Edge
U. M. C. & W. R. A.—P. E., 8.....1.50 } Pink Edge
U. M. C. & W. R. A.—P. E., 7.....1.50 } Pink Edge
Ely's B. E., 11 and larger.....$1.70@1.75
Ely's P. E., 12 to 20.....$3.00@3.25

Wagon Boxes—

See *Boxes, Wagon.*

Wagon Jacks—

See *Jacks, Wagon.*

Ware, Hollow—

Aluminum—
S. S. & Co. Reduced List.....40%

Cast Iron, Hollow—

Stove Hollow Ware—
Ground.....60&10@60&10&10%
Unground.....70&5@70&10%
White Enameled Ware—
Maslin Kettles.....75&10&5@80%
Boilers and Saucepans.....60@60&5%
Tinned Boilers and S'pans.....60&5%

See also *Pots, Glue.*

Enameled—

Agate and Granite Ware, list Jan. 1, '94, revised Jan. 2, '95.....40&10%
Second Quality.....70&10@70&10&10%
Ironclad Enameled Ware, Old list...70%
Never Break Enameled.....50&10%

Kettles—

Galvanized Tea Kettles—

Inch....	6	7	8	9
Each...	40¢	45¢	50¢	55¢

Steel Hollow Ware.

Avery Spiders & Griddles.....70@70&5%
Avery Kettles.....60@60&10%
Never Break Spiders and Griddles..... 70@70&5%
Never Break Kettles.....60@60&10%
Solid Steel Spiders & Griddles. 70@70&5%
Solid Steel Kettles.....60@60&10%
Solid Steel Ware, Enameled.....50&10%

Silver Plated Hollow—

William Rogers Mfg. Co.....40&10&5%

Washboards—

Solid Zinc:	₩ doz.
Crescent, family size, bent frame.	$2.75
Red Star, laundry size, stationary protector.....	$4.00
Double Zinc Surface:	
Diamond, family size, stationary protector.....	$2.75
Saginaw Globe, family size, stationary protector.....	$2.50
Wilson, family size, bent frame...	$2.50
Single Zinc Surface:	
Nalad, protector, family size, open back perforated.....	$2.15
Diamond, protector family size, ventilated back.....	$2.10
Saginaw Globe, protector, family size, ventilated back.....	$2 00
Wilson, bent frame, family size, ventilated back.....	$2 00
Eagle, protector, family size, ventilated back.....	$1 85

Washers—
Leather, Axle—

Solid.....80&10&10@85%
Patent.....85@85&5%
Coil; ⅜ 1 1¼ 1¼ Inch.
15¢ 14¢ 15¢ 17¢ ₩ 100.

Iron or Steel—

Size bolt..... 5-16 ⅜ ½ ⅝ ¾
Washers.....$4.00 3.50 2.50 2.25 2.25
In lots less than one keg add ¼¢ ₩ ℔. 5-℔ boxes add ½¢ to list.

Washer Cutters—
See *Cutters, Washer.*

Washing Machines—
See *Machines, Washing.*

Water Coolers—
See *Coolers, Water.*

Weaners—
Tyler's New Hatter—No 1 ₩ doz. $3; No. 2, $3.25; No 3, $3 50; No. 4, $3 75
Tyler's Safety—Nos. 1 and 2, ₩ doz. $1.50; No. 3, $1.75; No. 4, $2.00.

Weather Strips—See *Strips, Weather.*

Wedges—
Oil Finish.....₩ ℔ 2.70@2.85¢
Axe Finish.....₩ ℔ 3.00@3.10¢

Weights, Sash—
Eastern: Carloads at factory.....$16.00
Less than carloads at factory... $17.00
Western: Carloads at factory .....
$15.00@15.50
Less than carloads at factory.....
$16.00@16.50

Well Buckets Galvanized
See *Pails, Galvanized.*

Wheels, Well—
8-in., $2.00; 10-in., $2.50; 12-in., $2.75

Wire and Wire Goods—
Market: Nos. 0 to 18
Br. & Ann.....75&7½@75&10%
Cop'd.....72½@72½&5%
Galv.....72½@72½&5%
Tin'd, Tin'd list.....75&7½@75&10%
Stone, Br. and Ann'd:
Nos. 16 to 18.....
Nos. 19 to 26.....
Nos. 27 to 36.....
} Quotations nominal.

Annealed Wire on Spools.....
60&10@60&10&5%
Brass, list Feb. 26, '98.....20%
Copper, list Feb. 26, '98.....20%
Cast Steel Wire.....50%
Malin's Ann'd & Tin'd on Spools .60&20%
Malin's Brass & Cop. on Spools....50&10%
Steel Music Wire, 12 to 30, imported .
60@70¢ ₩ ℔
Stubs' Steel Wire.....$6.00 to 2, 40%
Wire Clothes Line, see *Lines.*
Wire Picture Cord, see *Cord.*

Bright Wire Goods—
Iron and Brass, list April 1, 1899.....
40&10@50%

Note.—The old high list is still used by many merchants, dis. 90@ %.

Wire Cloth and Netting—
Galvanized Wire Netting.....
80&10@80&10&10%
Painted Screen Cloth ₩ 100 ft. ..15@1.25¢
See *Trade Report*

Wire Barb—See *Trade Report.*

Wire, Rope—See *Rope, Wire.*

Wrenches—
Agricultural.....80&5@80&10%
Baxter's S.....70@70&5%
Coes' Genuine.....40&10&5&5&3%
Coes' "Mechanics".....40&10&10&5&5&3%
Acme.....60@60&5%
Aiken's Pocket (Bright).....$2.00@3.20
Alligator.....70@70&10%
Bemis & Call's:
Adjustable S.....35&5%
Adjustable Pipe.....40%
Brigg's Pattern.....30&10%
Combination Black.....40&10%
Combination Bright.....40&5%
Cylinder or Gas Pipe.....55%
Extra Heavy.....45%
Merrick's Pattern.....50%
No. 3 Pipe, Bright.....50%
Bit Wrench, Adj., Tatum's.....
₩ doz. $2.25....25&10%
Boardman's.....33⅓%
Bull Dog, W. & B.....70@70&10%
Cincinnati Brace Wrenches.....25&10%
Donohue's Engineer.....40&10%
Eagle.....50&10%
Hercules.....70&10@75%
Stevenson.....60&10&10%
Tatum's Brace Socket.....40%
W. & B. Machinists' Knife Hdle.....
50&10@50&10&7½%
W. & B. All Steel Pipe.....50&10@60%
W. & B. Drop Forged Engineers'.....
35@40&10%

Wrought Goods—
Staples, Hooks, &c., list March 17, '92
See *Trade Report.* 90@90&10%

Yokes, Neck—
Covert Saddlery Works, Trimmed.70%
Covert Saddlery Works, Neck Yoke Centers.....70%

Yokes, Ox, and Ox Bows—
Fort Madison's Farmers' & Freighters'.....
20%

PAINTS, OILS AND COLORS.—Wholesale Prices.

White Lead, Zinc, &c.
Lead, Foreign white, in Oil... 8 @8¼
Lead, American White, in Oil:
Lots of 500 ℔ or over..... 5½@5¾
Lots less than 500 ℔..... 6¼
Lead, White, in oil, 25 ℔ tin pails, add to keg price..... ¼
Lead, White, in oil, 12½ ℔ tin pails, add to keg price..... 1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price.. 1¼
Lead White, Dry in bbls..... 5
Lead, American, Terms: On lots of 500 lbs. and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.
Zinc, American, dry..... ₩ ℔ 3¾@4½
Zinc, French, S. & B. Red Seal..... 7½
Zinc, French, S. & B. Green Seal ..7 7-10
Zinc, Paris, Red Seal..... 8½
Zinc, Paris, Green Seal..... 9½
Zinc, Antwerp, Red Seal..... 7½
Zinc, Antwerp, Green Seal..... 8½
Zinc, V. M. in Poppy Oil, G. Seal lots of 1 ton and over..... 10¼
lots less than 1 ton..... 10¾
Zinc, V.M. in Poppy Oil, Red Seal, lots of 1 ton and over..... 9¼
lots of less than 1 ton..... 9¾
Discounts.—V. M. French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1%; 25 bbls., 2%; 50 bbls., 4%. No discount allowed on less than 10 bbl. lots.

Dry Colors.
Black, Carbon.....₩ ℔ 5 @40
Black, Drop, Amer..... 2½@ 5
Black, Drop, Eng..... 5 @10
Black, Ivory.....10 @20
Blue, Celestial.....₩ ℔ 6 @ 8
Blue, Chinese.....30 @35
Blue, Prussian.....28 @32
Blue, Ultramarine..... 5 @30
Brown, Spanish..... ½@ 1
Brown, Vandyke, Amer..... 1½@ 2½
Brown, Vandyke, Foreign..... 2½@ 5
Carmine, No. 40, in bulk.....$2.20@2.25
Carmine, No. 40, in ℔ bottles. 2.35@ ..
Carmine, No. 40, in ounce bot. 3.50@3.60
Green, Chrome, ordinary..... 2 @10
Green, Chrome, pure.....18 @24
Lead, Red, bbls. and ½ bbls..... @ 5¾
Lead, Red, kegs..... @ 6
Litharge, bbls. and ½ bbls..... @ 5¾
Litharge, kegs..... @ 6
Ocher, French Washed..... 1 @1¾
Ocher, German Washed..... 4½@ 5
Ocher, American ..₩ ton $8.00@17.00
Orange Mineral, English..₩ ℔ 8½@ 9½
Orange Mineral, French.....10½@10¾
Orange Mineral, German..... 8½@ 8¾
Orange Mineral, American..... @ 7¾
Red, Indian, English..... 4½@ 8½
Red, Indian, American..... 2½@ 3
Red, Turkey..... 4½@ 8
Red, Tuscan..... 7 @14
Red, Venetian, Amer..₩ 100 ℔.60 @70
Red, Venetian, English.....$1.05@2.00
Sienna, Italian, Burnt and Powdered.....₩ ℔ 4 @ 9½
Sienna, Ital., Raw, Powd..... 2½@ 7
Sienna, American, Raw..... 1¼@ 1½
Sienna, American, Burnt and Powdered.....₩ ℔ 1¼@ 1½
Talc, French.....₩ 100 ℔ 90 @1.50
Talc, American.....40 @65
Terra Alba, French, ₩ 100 ℔.. 90 @1.00
Terra Alba, English..... 75 @80
Terra Alba, American No. 1....85 @75
Terra Alba, American No. 2....45 @50
Umber, Turkey, Bnt. & Pow.₩ ℔ 2½@ 3
Umber, Turkey, Raw & Powd. 2½@ 3
Umber, Bnt. Amer..... 1¼@ 1½
Umber, Raw, Amer..... 1¼@ 1½
Yellow, Chrome.....10 @25
Vermilion, American Lead..... @10
Vermilion, Quicksilver, bbls. or kegs..... @61
Vermilion, Quicksilver, bags.... @62
Vermilion, Quicks'r, sm'r pkgs.... @67
Vermilion, English, Import.. 70 @75
Vermilion, Artificial..... 5 @90
Vermilion Chinese.....70 @75

Colors in Oil.
Black, Lampblack, Best..... 10 @13
Black, Lampblack, Common.. 7 @ 9
Blue, Chinese..... .....35 @40
Blue, Prussian.....25 @35
Blue, Ultramarine.....16 @90
Brown, Vandyke..... 7 @12
Green, Chrome..... 7 @11
Green, Paris.....17 @22
Sienna, Raw..... 7 @10
Sienna, Burnt..... 7 @10
Umber, Raw..... 6 @10
Umber, Burnt..... 7 @10

Miscellaneous.
Barytes, Foreign, ₩ ton....$20.00@23.00
Barytes, Amer. floated..... 18.00@20.00
Barytes, Crude..... 8.00@10.00
Chalk, in bulk.....₩ ton 2.00@ ..
Chalk, in bbls.....₩ 100 ℔ 35@ ..
China Clay, English..₩ ton 10.00@17.50
Cobalt, Oxide.....₩ 100 ℔ ....@ 1.76
Whiting, Common, ₩ 100 ℔ .30@ .40
Whiting, Gilders'..... .40@ .45
Whiting, extra Gilders'.... @ 55%
Paris Green:
Arsenic, kegs or casks.....12
Kegs, 100 ℔ @ 175 ℔.....12½
Kits, 14, 28, 56 ℔.....13½
Paper Boxes, 2 @ 5 ℔.....13½
Paper Boxes, 1 ℔.....14
Paper Boxes, ½ ℔.....15
Paper Boxes, ¼ ℔.....16

Putty.
In barrels and ½ bbls..... 1 4-10@ 1¼
In tubs..... 1¼@1 4-10
In tin cans..... 1¼@ 2
In bladders..... 1¼@ 2

Spirits Turpentine.
In Southern bbls..... @44½¢
In machine bbls..... @45 ¢

Glue.
Low Grade.....₩ ℔ 7 @ 9
Cabinet.....11 @15
Medium White.....10 @15
Extra White.....15 @25
French.....10 @25
Irish.....10 @12½

Animal Fish and Vegetable Oils.
Linseed, City, raw.....₩ gal.49 @50
Linseed, City, boiled.....51 @52
Linseed, Western, raw .....46 @47
Linseed, raw Calcutta seed.....
@58
Lard, Prime City, present make4 @45
Lard, City, Extra No. 1..... ....35 @37
Lard, City, No. 1.....31 @42
Cotton-seed, Crude.....22 @22½
Cotton-seed, Summer Yellow, prime.....26½@27
Cotton-seed Summer Yellow, off grades..... .....25½@26
Sperm, Crude.....50 @52
Sperm, Natural Spring.....53 @55
Sperm, Bleached Spring.....58 @60
Sperm, Natural Winter.....
@57
Sperm, Bleached Winter.....62 @65
Whale, Crude.....
@
Whale, Natural Winter.....
@46
Whale, Bleached Winter.....
@49
Whale, Extra Bleached Win.....
@52
Menhaden, Crude, Sound.....24 @25
Menhaden, Light Pressed.....29 @30
Menhaden, Bleached Winter.....
@31
Menhaden, Extra Bleached....34 @
Tallow, Western, prime.....42 @43
Cocoanut, Ceylon.....5¼@ 6
Cocoanut, Cochin.....6¼@ 6¾
Cod, Domestic.....34 @36
Cod, Newfoundland.....38 @40
Red Elaine.....28 @30
Red Saponified.....₩ ℔ 4 @ 4¼
Bank.....₩ gal. .. @27
Straits.....
@28
Olive, Italian, bbls.....58 @60
Neatsfoot, prime.....42 @45
Palm, prime, Lagos.....₩ ℔ 5½@ 5¾

Mineral Oils.
Black, 29 gravity, 25@30 cold test.....₩ gal. .. @ 7½
Black, 29 gravity, 15 cold test. .. @ 8½
Black, summer..... @ 7
Cylinder, light filtered..... 13 @15½
Cylinder, dark filtered..... 11 @16
Paraffine, 23½@24 gravity..... 8½@ 9
Paraffine, 25 gravity..... 7½@ 8
Paraffine, 28 gravity..... 6½@ 6¾
Paraffine, red. No. 1..... 8½@ 8¾
In small lots ½¢ advance.

THE IRON AGE.

The oldest paper in the world devoted to the interests of the Hardware, Iron and Metal Trades, and a standard authority on all matters relating to those branches of industry.

RATES OF SUBSCRIPTION: INCLUDING POSTAGE.

UNITED STATES AND BRITISH AMERICA.

Regular Edition, Issued every THURSDAY morning, - - - - - - - - - - $4.50 a year.
Two Dollar Edition, large number FIRST and THIRD THURSDAYS of every month, Bulletin number each intervening Thursday, 2.00 "
Dollar Edition, large number FIRST THURSDAY of every month, Bulletin number each intervening Thursday, - - 1.00 "

RATES OF ADVERTISING: ONE INCH.

ONE INSERTION, - - - - - - - $2.40
ONE MONTH, (5 times) - - - - - - 9.00
THREE MONTHS, - - - - - - - 21.00
SIX MONTHS, - - - - - - - - $36.00
ONE YEAR, - - - - - - - - - 60.00
Rates for larger spaces quoted on application.

New York (Main Office), - - 232-238 William Street, - - - - - - DAVID WILLIAMS CO., Pub'rs.
Philadelphia, - - - - - - - Forrest Building, 117-119 South Fourth Street, - - THOMAS HOBSON, Manager.
Pittsburgh, - - - - - - - Hamilton Building, 335 337 Fifth Avenue, - - ROBERT A. WALKER, Manager.
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BRITISH AGENCY: Office of *The Ironmonger*, 42 Cannon Street, London.
AUSTRALIAN OFFICES: Melbourne, Hardware Chambers, 231 Elizabeth Street; Sydney, 114a Pitt Street.

Remittances should be made by draft, payable to the order of DAVID WILLIAMS COMPANY, on any banking house in the United States or Europe, or by P. O. Money Order on New York. When these cannot be obtained, postage stamps of any country will be received.
Newsdealers or Booksellers in any part of the world may obtain *The Iron Age* through The American News Company, New York, U. S. A.; The International News Company, New York, U. S. A., and London, England; or The San Francisco News Company, San Francisco, Cal., U. S. A.

Entered at the Post Office, New York, as Second-class Matter.

CURRENT METAL PRICES.

APRIL 19, 1899.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from Store—

Common Iron: Duty, Round, 0.6¢ ₩ lb; Square, 0.8¢ ₩ lb
¾ to 2 in. round and square; 1 to 6 in. x ⅜ to 1 in. ₩ lb 1.70¢ @ 1.80¢
Refined Iron:
¾ to 2 in. round and square; 1 to 4 in. x ⅜ to 1½ in.; 4½ to 6 in. x ⅜ to 1-in. ₩ lb 1.75¢ @ 1.85¢
1 to 6 in. x ¾ and 5-16 ₩ lb 1.95¢ @ 2.05¢
Angles 1.90¢
Tees 2.10¢
Beams 2.00¢
Channels 2.00¢
Rods—¾ and 11-16 round and sq'e. ₩ lb 1.85¢ @ 1.95¢
Bands—1 to 6 x 3-16 to No. 12 ₩ lb 2.30¢ @ 2.45¢
"Burden's Best" Iron, base price ₩ lb 2.80¢
Burden's "H. B. & S. Iron, base price ₩ lb 2.60¢
"Ulster" ₩ lb 2.70¢
Norway Bars 3.50 @ 4.00¢
Norway Shapes 4.00 @ 4.25¢

Merchant Steel from Store—

	per lb
Open Hearth and Bessemer Machinery	2.00 to 2.10¢
Toe Calk, Tire and Sleigh Shoe	2¼ to 2½¢
Best Cast Steel, base price in small lots	7 ¢
Best Cast Steel Machinery, base price in small lots	5 ¢

Soft Steel Sheets—

¼ inch	2.35¢	No. 14	2.55¢
8-16 inch	2.40¢	No. 16	2.65¢
No. 8	2.45¢	No. 18	2.75¢
No. 10	2.45¢	No. 20	2.85¢
No. 12	2.50¢	No. 22	2.90¢

Sheet Iron from Store.

Black.

	Common American.	R. G. Cleaned American.
Nos. 10 to 16	₩ lb, 2.60	2.80¢
Nos. 17 to 21	₩ lb, 2.70	2.90¢
Nos. 22 to 24	₩ lb, 2.80	3.00¢
Nos. 25 and 26	₩ lb, 2.90	3.10¢
No. 27	₩ lb, 3.00	3.20¢
No. 28	₩ lb, 3.10	3.30¢

Russia, Planished, &c.

Genuine Russia, according to assortment ₩ lb 10½¢
Patent Planished ₩ lb A, 9¾¢; B, 8¾¢, net.
Patent Planished Sheet Steel ₩ lb 8¼¢

Galvanized.

	B. B. 70&5% off.
Nos. 10 to 16	₩ lb, 12¢
Nos. 17 to 21	₩ lb, 13¢
Nos. 22 to 24	₩ lb, 14¢
Nos. 25 to 26	₩ lb, 15¢
No. 27	₩ lb, 16¢
No. 28	₩ lb, 17¢
No. 29	₩ lb, 19¢
No. 30	₩ lb, 21¢

26 in. 1¢ ₩ lb higher.

Foreign Steel from Store—

Best Cast	₩ lb 14 ¢
Extra Cast	₩ lb 16½ @ 17 ¢
Swaged, Cast	₩ lb 16 ¢
Best Double Shear	₩ lb 14 ¢
Blister, 1st quality	₩ lb 12 ¢
German Steel, Best	₩ lb 10 ¢
2d quality	₩ lb 9 ¢
3d quality	₩ lb 8 ¢
Sheet Cast Steel, 1st quality	₩ lb 14 ¢
2d quality	₩ lb 13 ¢
3d quality	₩ lb 11 ¢
R. Mushet's "Special"	₩ lb 46 ¢
" " " Annealed	₩ lb 75 ¢
" " "Titanic"	₩ lb 19 ¢
Hobson's Choice XX Extra Best	₩ lb 35 ¢
Jessop Self Hardening	₩ lb 40 ¢
Seamans' "Nelson" Steel	40 ¢
Hobson Self-Hardening	₩ lb 40 ¢

METALS—

Tin—

Duty.—Pigs, Bars and Block.	Free.	Per lb
Banca, Pigs		26¢
Straits, Pigs		25¢
Straits in Bars		26¢

Tin Plates—

American Charcoal Plates.

Calland Grade:
IC, 14 x 20 $6.25@6.50
IX, 14 x 20 7.75@8.00
Melyn Grade:
IC, 14 x 20 6.00
IX, 14 x 20 7.25
Allaway Grade:
IC, 14 x 20 5.00@5.25
IX, 14 x 20 6.00@6.25

American Coke Plates—Bright—

IC, 14 x 20 108 lb $4.50@4.60
IX, 14 x 20 5.40@5.50
IXX, 14 x 20 6.05@6.15

American Terne Plates—

IC, 20 x 28 $8.50@ 9 00
IX, 20 x 28 10.5 @11.00

Tin Boiler Plates, American—

IXX, 14 x 26 112 sheets $10.50
IXX, 14 x 28 112 sheets 11.45
IXX, 14 x 31 112 sheets 12.65

Copper—

DUTY: Pig, Bar and Ingot and Old Copper free Manufactured, 2½¢ ₩ lb.

Ingot—

Lake 19¼¢
Ansonia grade Casting 18¼@18½¢

Sheet and Bolt—

February 2, 1899. Net.
Prices, in cents per pound.
Sheet 30 x 60.

Not wider than	Not longer than	And longer than	64 oz. & over, 30 lb. sheet, 30 x 60 and heavier.	30 oz. to 64 oz. 25 to 30 lb.	24 oz. to 30 oz. 20¾ to 25 lb.	16 oz. to 24 oz. 13½ to 19¾ lb.	14 oz. and 15 oz. 11 to 12½ lb.	12 oz. and 13 oz. 9½ to 11 lb.	10 oz. and 11 oz. 7¾ to 9½ lb.	8 oz. and 9 oz. 6¾ to 7¾ lb.	Lighter than 8 oz.
Ins.	Ins.	Ins.									
30	72	.....	21½	21½	21½	21½	22½	23½	24½	27½	30½
30	96	72	21½	21½	21½	21½	22½	24½	27½	30½	
30	.....	96	21½	21½	21½	21½	23½	27½			
36	72	.....	21½	21½	21½	21½	23½	25½	28½	31½	
36	96	72	21½	21½	21½	21½	23½	27½	30½		
36	120	96	21½	21½	21½	22½	24½				
48	.....	120	21½	21½	21½	23½					
48	72	.....	21½	21½	22½	24½	25½	28½	31½		
48	96	72	21½	21½	22½	24½	26½	29½			
48	120	96	21½	21½	22½	25½	29½				
48	.....	120	21½	22½	24½	27½					
60	72	.....	21½	22½	23½	27½	30½				
60	96	72	21½	21½	23½	25½	30½				
60	120	96	21½	22½	24½	27½					
60	.....	120	21½	23½	25½	29½					
72	96	.....	21½	22½	24½	27½					
72	144	96	21½	23½	26½	31½					
72	.....	144	22½	24½	29½						
108	120	.....	22½	24½	30½						
108	.....	120	24½	25½							
wider than 108	144	.....	25½	27½							
	.....	144	26½	29½							

Bolt Copper, ¾ inch diameter and over, ₩ lb 21¼¢
Circles, Segments and Pattern Sheets, 3¢ ₩ lb advance over price of Sheet Copper required to cut them from.
Cold or Hard Rolled Copper, 14 oz. ₩ square foot and heavier, 1¢ ₩ lb over the foregoing prices.
Cold or Hard Rolled Copper, lighter than 14 oz. ₩ square foot, 2¢ ₩ lb over the foregoing prices.
All Polished Copper, 20 in. wide and under, 1¢ ₩ lb advance over the price for Cold Rolled Copper.
All Polished Copper, over 20 in. wide, 2¢ ₩ lb advance over the price for Cold Rolled Copper.

Planished Copper—

1¢ ₩ lb more than Polished Copper.

Copper Bottoms, Pits and Flats—

14 oz. to square foot and heavier, ₩ lb 25½¢
12 oz. and up to 14 oz. to square foot, ₩ lb 26½¢
10 oz. and up to 12 oz., ₩ lb 28½¢
Lighter than 10 oz., ₩ lb 31½¢
Circles less than 8 in. diameter, 2¢ ₩ lb addit on al.
Circles over 13 in. diameter are not classed as Copper Bottoms.

Copper Wire—

Hard and Soft Drawn—B. & S. Gauge.

Nos.	0000 to 8	9 and 10	11 and 12
	20¢	20½¢	20¼¢

Nos.	13	14	15	16
	20½¢	20¾¢	21¢	21¼¢
Nos.	17	18	19	20
	21¾¢	22¢	22¼¢	22½¢

Seamless Brass Tubes—

Standard always Stubs' gauge, unless otherwise ordered.
Feb. 6, 1899. Net. Outside Diameter.

Stubs' W. G.	B. & S. W. G.	⅛	5-16	⅜	7-16	½	9-16	⅝	¾	⅞	1	1⅛	1¼
4-11	3- 9	...	.....	...	.....	33	31	30	29	28	27	25	24
12	10	...	.....	37	35	33	31	30	29	28	27	25	24
13	11	...	.....	37	35	33	31	30	29	28	27	25	24
14	12	...	41	37	35	33	31	30	29	28	27	25	24
15	13	...	42	38	36	33	32	31	30	30	28	26	25
16	14	...	43	39	37	34	33	32	31	30	29	26	25
17	15	...	44	40	38	35	34	33	32	31	30	27	26
18	16	61	46	42	39	36	35	34	33	31	30	28	27
19	17	59	47	43	40	37	36	35	34	33	32	30	29
20	18-19	64	49	44	41	39	38	37	36	35	34	32	31
21	20	66	51	46	43	41	40	39	38	37	36	35	34
22	21	71	56	48	44	42	41	40	39	38	37	37	36
23	22	76	61	50	46	44	43	42	41	40	39	39	39
24	23	81	66	53	48	46	45	44	43	41	40	40	41
25	24	86	72	56	51	49	47	46	45	43	43	44	43

Copper Bronze and Gilding Tube, 3¢ ₩ lb additional

Iron Pipe Sizes—Brass

⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6 inch
30	32	29	27	21	21	21	21	21	21	23	24	25	27	27	₩ lb

Copper, Bronze or Gilding Tubes, 3¢ ₩ lb additional.

Brazed Brass Tubing.

(*To No. 19, inclusive.*) Feb. 26 1896
Brown & Sharpe's gauge standard.

	Per lb.
Plain Round Tube, ⅛ in. up to 2 in.	$0.35
" ⅛ " ¼ "	.36
" ¼ " ⅜ "	.38
" ⅜ " ½ "	.41
" 5-16 " ½ "	.48
" ¼ " 5-16 "	.65
" 3-16 " ¼ "	1.00
" ⅛ " 3-16 "	1.50
Smaller than ⅛ inch	Special
3 inch and larger	.40
Over 3 inch to 3½ inch, inclusive	.45
Over 3½ inch	.50

Bronze and Copper, advance on Brass List, 3 cents.
Discount from list 5% 35%

Roll and Sheet Brass—

(*Brown & Sharpe Standard Gauge.*)

Common High Brass Wider than and including	in. 3 12	in. 13 14	in. 14 16	in. 16 18	in. 18 20	in. 20 22	in. 22 24	in. 24 26
To No. 20, inclusive	.22	.23	.25	.27	.29	.31	.33	.36
Nos. 21, 22, 23 and 24	.22	.24	.26	.28	.30	.32	.34	.37
Nos. 25 and 26	.23	.24½	.27	.29	.31	.33	.35	.38
Nos. 27 and 28	.23	.25	.28	.30	.32	.34	.36	.39

Common High Brass Wider than and including	in. 26 28	in. 28 30	in. 30 32	in. 32 34	in. 34 36	in. 36 38	in. 38 40	in. 40
To No. 20, inclusive	.39	.42	.46	.50	.55	.60	.65	*
Nos. 21, 22, 23 and 24	.40	.43	.47	.51	.56	.61	.68	
Nos. 25 and 26	.41	.44	.48	.52	.57	.63	.71	
Nos. 27 and 28	.42	.45	.49	.53	.58	.65	.75	

* Special prices not less than 80 cents.
Add 1¢ ₩ lb additional for each number thinner than Nos. 29 to 38 inclusive. Discount from List 20%

Wire in Coils. List February 26, 1896.

Brown & Sharpe's gauge the standard.	Com. high brass.	Low brass.	Gild'g bronze and copper
All Nos. to No. 10, inclusive	$0.23	$0.27	$0.28
Above No. 10 to No. 16	.23½	.27½	.28¼
No. 17 and No. 18	.24	.28	.32
No. 19 and No. 20	.25	.29	.33
No. 21	.26	.30	.34
No. 22	.27	.31	.35
No. 23	.28	.32	.36
No. 24	.30	.34	.38
No. 25	.32	.36	.40
No. 26	.35	.39	.43
No. 27	.38	.42	.46
No. 28	.42	.46	.51
No. 29	.45	.49	.54
No. 30	.48	.52	.62
No. 31	.51	.55	.67
No. 32	.55	.59	.73
No. 33	.59	.63	.82
No. 34	.64	.68	.95
No. 35	.70	.74	1.30
No. 36	.76	.80	1.50
No. 37	1.00	1.04	1.70
No. 38	1.30	1.34	2.00
No. 39	2.00	2.00	3.25
No. 40	2.60	2.60	5.75

Discount, Brass Wire, 20%; Copper Wire, NET.
List November 16, 96.
Spring Wire, 3¢ ₩ lb advance.

Spelter—Duty: In Blocks or Pigs, 1¢ ₩ lb

Western Spelter 6¾@7¢

Zinc.

Duty: Sheet, 2¢ ₩ lb.

600 lb casks 8¢ | Per lb 8½¢

Lead.

Duty: Pigs and Bars and Old, 2½¢ ₩ lb. Pipe and Sheets, 2¾¢ ₩ lb.

American Pig 4¾@4¾¢
Bar 5¼¢
Pipe (full lengths), subject to discount 20% 6¼¢
Pipe cut lengths), subject to discount 20% 7¼¢
Tin Lined Pipe, subject to discount 20% 12¼¢
Block Tin Pipe, subject to discount 30% 37½¢
Sheet (full rolls) subject to discount 20% 7¼¢
Sheet (cut rolls (subject to discount 20% 8¼¢
Old Lead in exchange, 4¢ ₩ lb.

Solder.

½ & ½, guaranteed 16½¢
No. 1 15@15½¢

Prices of Solder indicated by private brand vary according to composition.

Antimony—

Duty, ¾¢ ₩ lb.

Cookson ₩ lb 11½@12¢
Hallett's ₩ lb 10½@10¾¢
U. S. ₩ lb 10¼@10½¢

Aluminum—

Duty: Crude, 8¢ ₩ lb. Plates, Sheets, Bars and Rods 13¢ ₩ lb.

No. 1 Aluminum (guaranteed over 99% pure), in ingots for remelting:
Small lots ₩ lb 37¢
100-lb lots ₩ lb 35¢
No. 2 Aluminum (guaranteed to be over 90% pure), in ingots for remelting:
Small lots ₩ lb 34¢
100-lb lots ₩ lb 33¢
Special casting Alloy, containing over 80% pure Aluminum:
Small lots ₩ lb 35¢ | 100-lb lots ₩ lb 30¢
Aluminum Rods, from ¾-in. diam. to 1 in. diam. ₩ lb 53¢
Aluminum Sheet, B. & S. gauge. 50 lb or more.

	Wider than 6-in. ₩ lb.	14-in. ₩ lb.	24-in. ₩ lb
And including	14-in.	24-in.	30-in.
Nos. 13 to 19	$0.38	$0.40	$0.43
No. 20	.40	.42	.45
Nos. 21 to 23	.42	.44	.47
No. 24	.42	.46	.49
No. 25	.43	.47	.50
No. 26	.43	.50	.55
No. 27	.44	.53	.58
No. 28	.44	.52	.60
No. 29	.45	.56	.65
No. 30	.46	.60	.73

Nots.—Lots of less than 50 lb 5¢ ₩ lb extra.

Aluminum Wire, B. & S. Gauge.
Larger than No. 1 ₩ lb 55¢ | No. 17 to No. 20 ₩ lb 80¢
No. 1 to No. 8 ₩ lb 60¢ | No. 21 ₩ lb $1.15
No. 9 to No. 16 ₩ lb 65¢

Old Metals.

Dealers' Purchasing Prices Paid in New York.

Heavy Copper ₩ lb 15¼¢
Light and Tinned Copper ₩ lb 13¾¢
Heavy Brass ₩ lb 10¼¢
Light Brass ₩ lb 8¾¢
Lead ₩ lb 3¾¢
Tea Lead ₩ lb 2¼¢
Zinc ₩ lb 4¼¢
No. 1 Pewter ₩ lb 16¼¢
No. 2 Pewter ₩ lb 9½¢
Tin Plate Scrap ₩ ton $8.50
Wrought Scrap Iron ₩ gross ton $9.75
Heavy Cast Scrap ₩ gross ton $8.50
Stove Plate Scrap ₩ gross ton $6.00
Burnt Iron ₩ gross ton $8.50